maintenance & service guide

Presario 1200 Series

Models: XL101-XL113, XL115, XL118-XL127

Before You Begin | Product Description | Specifications

Pin Assignments | Battery Operations | Troubleshooting

Removal Sequence | Parts Catalog | MSG Index

Welcome to the Maintenance & Service Guide (MSG)

Welcome to the *Maintenance and Service Guide* (MSG) for Compaq Presario 1200XL Series Portable Notebooks. This online guide is designed to serve the needs of technicians whose job is to repair Compaq products.

For copyright and trademark information, refer to the *Notice* section of this MSG. To locate your unit's serial number, to see symbol conventions, or to view technician's notes, see the *Preface*. This MSG is updated online as needed.

For comments or questions about the contents of this MSG, contact Compaq.

To report a technical problem, contact your Regional Support Center or IM Help Center.

For help on navigating in this guide, refer to *Using this Guide*.

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Using this Guide

To effectively use this guide, refer to the list of bookmarks at the left of the screen. These bookmarks help you navigate through the document quickly and easily. They are accessible from anywhere in the *Maintenance and Service Guide* (MSG).

Viewing a Chapter

Click one of the bookmarks or one of the color-coded bubbles on the Welcome page to view a chapter of this MSG.

Expanding & Hiding Topics

Click the **+** to expand or show the contents of a section, or click the **–** to hide the contents.

Opening another Chapter

Return to the Welcome page by clicking the bookmark, **1200 Series Maintenance and Service Guide**, and then click the bookmark or color-coded bubble for another chapter.

Printing the MSG

For portable copies of this MSG, you can print single pages, multiple pages, or the entire guide. In the Acrobat Reader, click **File**, and then **Print...** for printing options.

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Before You Begin

Notice

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Maintenance and Service Guide

Compaq Presario 1200 Series Notebook Computer

First Edition (June 2000) Compaq Computer Corporation

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Presario 1200 Series
Models: XL101-XL113, XL115, XL118-XL127

Preface

This *Maintenance and Service Guide* is a troubleshooting guide that is used as a reference guide when servicing the Compaq Presario 1200 Series Notebook Computers.

Compaq Computer Corporation reserves the right to make changes to the Compaq Presario 1200 Series Notebooks without notice.

Symbols

The following words and symbols mark special messages throughout this guide.

⚠ **WARNING:** Text set off in this manner indicates that a failure to follow directions in the warning could result in bodily harm or loss of life.

⚠ **CAUTION:** Text set off in this manner indicates that a failure to follow directions could result in damage to equipment or loss of data.

Important: Text set off in this manner preseats clarifying information or specific instructions.

Note: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Technician Notes

⚠ **WARNING:** Only authorized technicians trained by Compaq should repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module level repair. Because of the complexity of the individual boards and subassemblies, the user should not attempt to make repaires at the component level or to make modifications to any printed circuit board. Improper repairs can create a safety hazard. Any indications of component replacement or printed circuit board modifications may void any warranty.

Serial Number

When requesting information or ordering spare parts, you should provide the Notebook serial number to Compaq. The serial number location is underneath the Notebook.

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Locating Additional Information

The following documentation is available to support this product:

- Compaq Presario 1200XL Series Notebook Computer documentation set
- Introducing Windows 98 Guide
- Introducing Windows 2000 Guide
- Service Training Guides
- Compaq Service Advisories and Bulletins
- Compaq QuickFind
- Compaq Service Quick Reference Guide

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Presario 1200 Series
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Product Description

Compaq Presario 1200XL Series Portable Notebook Computer

Models and Features

Compaq Presario 1200 Series Portable Notebook Models		
Feature	**XL101, XL102, XL103**	**XL104, XL105, XL106**
Display	12.1" HPA	12.1" HPA or 13.0" HPA
Processor	AMD-K6II MMX 450MHz	AMD-K6II MMX 450MHz or AMD-K6II MMX 475MHz
Hard Drive	4.8GB or 5.0GB	5.0GB
CD or DVD Drive	24X CD-ROM	24X CD-ROM
Modem	56.0Kbps PCI data/fax	56.0Kbps PCI data/fax
Battery	4.5Ahr NiMH or 3.5Ahr LiOn	4.5Ahr NiMH or 3.5Ahr LiOn
System Memory	32MB or 64MB	32MB or 64MB

Additional models described on the next page.

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Compaq Presario 1200 Series Portable Notebook Models		
Feature	**XL107**	**XL108, XL109**
Display	13.0" HPA	12.1" TFT/LVDS
Processor	AMD-K6II MMX 475MHz	AMD-K6II MMX 450MHz or AMD-K6II MMX 475MHz
Hard Drive	6.0GB	6.0GB
CD or DVD Drive	24X CD-ROM	24X CD-ROM or 6X DVD
Modem	56.0Kbps PCI data/fax	56.0Kbps PCI data/fax
Battery	4.5Ahr NiMH or 3.5Ahr LiOn	3.5Ahr LiOn or 4.5Ahr NiMH
System Memory	64MB	32MB or 64MB

Compaq Presario 1200 Series Portable Notebook Models		
Feature	**XL110**	**XL111**
Display	12.1" TFT	13.3" TFT/LVDS
Processor	AMD-K6II MMX 475MHz	AMD-K6II MMX 500MHz
Hard Drive	6.0GB	6.0GB
CD or DVD Drive	24X CD-ROM	6X DVD
Modem	56.0Kbps PCI data/fax	56.0Kbps PCI data/fax
Battery	3.5Ahr LiOn or 4.5Ahr NiMH	3.5Ahr LiOn
System Memory	32MB or 64MB	64MB

Compaq Presario 1200 Series Portable Notebook Models		
Feature	**XL112, XL113**	**XL115**
Display	12.1" TFT or 13.0" TFT	12.1" HPA
Processor	AMD-K6II MMX 450MHz+ or AMD-K6II MMX 500MHz+	AMD-K6II MMX 475MHz
Hard Drive	5.0GB or 6.0GB	5.0GB
CD or DVD Drive	24X CD-ROM or 6X DVD	24X CD-ROM
Modem	56.0Kbps PCI data/fax	56.0Kbps PCI data/fax
Battery	4.5Ahr NiMH or 3.2Ahr LiOn	4.5Ahr NiMH
System Memory	32MB or 64MB	Information not available

Additional models described on the next page.

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Compaq Presario 1200 Series Portable Notebook Models		
Feature	**XL118**	**XL119**
Display	13.0" HPA	12.1" TFT or 12.1" TFT/LVDS
Processor	AMD-K6II MMX 500MHz	AMD-K6II MMX 475MHz
Hard Drive	6.0GB	6.0GB
CD or DVD Drive	24X CD-ROM	24X CD-ROM
Modem	56.0Kbps PCI data/fax	56.0Kbps PCI data/fax
Battery	4.5Ahr NiMH	3.5Ahr LiOn
System Memory	64MB	64MB

Compaq Presario 1200 Series Portable Notebook Models		
Feature	**XL120**	**XL121**
Display	12.1" HPA	12.1" HPA
Processor	AMD-K6II MMX 500MHz	AMD-K6II MMX 500MHz
Hard Drive	5.0GB	5.0GB
CD or DVD Drive	24X CD-ROM	24X CD-ROM
Modem	56.0Kbps PCI data/fax	56.0Kbps PCI data/fax
Battery	4.5Ahr NiMH	4.5Ahr NiMH
System Memory	32MB	64MB

Compaq Presario 1200 Series Portable Notebook Models		
Feature	**XL122**	**XL123, XL124**
Display	12.1" HPA	13.0" HPA
Processor	AMD-K6II MMX 475MHz	AMD-K6II MMX 500MHz
Hard Drive	5.0GB	6.0GB
CD or DVD Drive	24X CD-ROM	24X CD-ROM
Modem	56.0Kbps PCI data/fax	56.0Kbps PCI data/fax
Battery	4.5Ahr NiMH	4.5Ahr NiMH
System Memory	64MB	64MB

Additional models described on the next page.

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Compaq Presario 1200 Series Portable Notebook Models		
Feature	**XL125**	**XL126, XL127**
Display	13.3" TFT	13.0" HPA
Processor	AMD-K6II+ MMX 533MHz	AMD-K6II+ MMX 533MHz
Hard Drive	6.0GB	6.0GB
CD or DVD Drive	6X DVD	24X CD-ROM
Modem	56.0Kbps PCI data/fax	56.0Kbps PCI data/fax
Battery	3.2Ahr LiOn	3.2Ahr LiOn
System Memory	64MB	96MB

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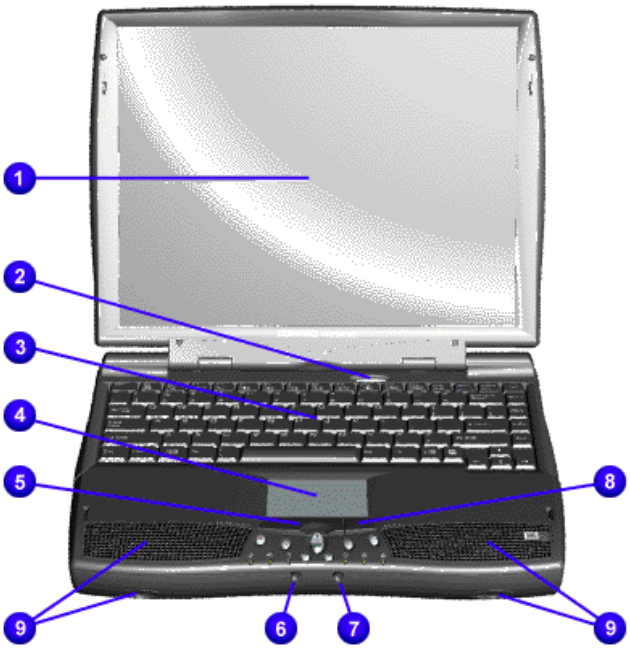
Front of Unit



#	Description	#	Description
❶	Display	❻	Headphone Jack
❷	Power (On/Off) Button	❼	Microphone Jack
❸	Keyboard	❽	Right TouchPad Button
❹	TouchPad	❾	Integrated Speakers and Ports
❺	Left TouchPad Button		

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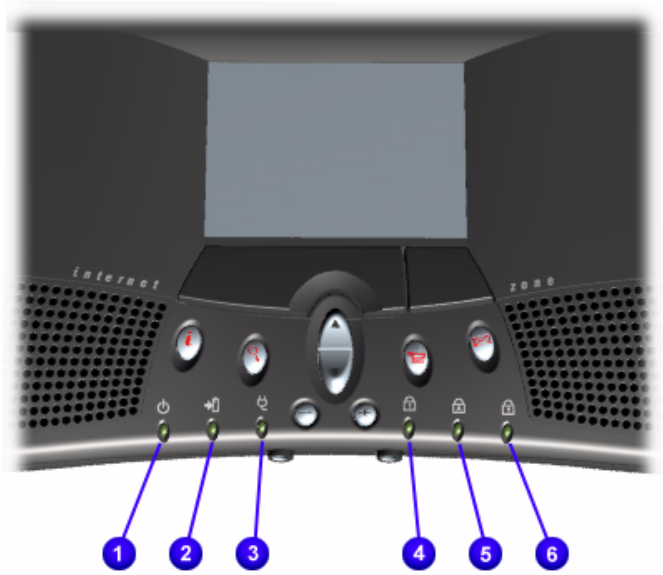
Front Bezel Lights



#	Description	#	Description
❶	Power Light	❹	Num Lock Light
❷	Battery Charging Light	❺	Caps Lock Light
❸	Power Cord Light	❻	Scroll Lock Light

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Right-Side Components

#	Description
❶	Battery Compartment
❷	CD or DVD Drive Eject Button
❸	CD or DVD Drive Manual Eject Hole

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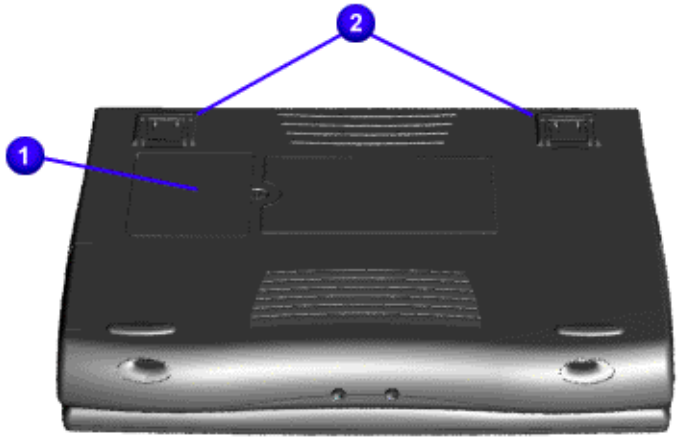
Left-Side Components

#	Description	#	Description
❶	PC Card Eject Lever	❸	Diskette Drive
❷	PC Card Slot	❹	Diskette Drive Eject Button

Underside of the Unit



#	Description
❶	Memory Compartment
❷	Stand Feet

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Rear Connectors

#	Description	#	Description
❶	AC Adapter	❺	External VGA Monitor Port
❷	Universal Serial Bus	❻	Parallel/Printer Port
❸	Security Slot	❼	Keyboard/Mouse Port
❹	Serial Port	❽	Modem Jack

Power Management

The following power management features are available for conserving AC power and extending battery operating time:

- Power Management Settings
- Low-Power Modes
- Battery Operating Life
- Servicing the Notebook - Full Off Mode
- Rebooting after a Lockup
- Recovering from a Loss of Electrical Power

Power Management Settings

Differing patterns of Notebook use determine the level of power management needed. These power management levels can be initiated based on the amount of time since the last system activity. System activity includes keyboard strokes, mouse movement, DVD/CD playback (while under program control that monitors Standby), and modem use.

Power Schemes

You may select different settings or *Power Schemes* through Power Management from the Control Panel. The default Power Schemes are **Home/Office Desk**, **Portable/ Laptop**, and **Always On**. The settings can be customized by changing the following options:

- **System Standby**: length of inactivity before the Notebook goes into Standby mode
- **Turn Off Monitor**: length of inactivity before the screen times out and goes blank
- **Turn Off Hard Disks**: length of inactivity before the hard drive goes into low power mode

Important: The setting for the Hard Disk must be less than or equal to the setting for System Standby. If the Notebook is on a network, Compaq recommends that **System Standby** be set to **Never**.

The following table shows the default settings for each Power Scheme.

Power Schemes		
Always on	**AC Power (hrs/min/Never)**	**Battery Power (hrs/min/Never)**
System Standby Turn OFF Monitor Turn OFF Hard Disks		
Portable/Laptop	**AC Power**	**Battery Power**
System Standby Turn OFF Monitor Turn OFF Hard Disks		
Home/Office Desk	**AC Power**	**Battery Power**
System Standby Turn OFF Monitor Turn OFF Hard Disks		

Alarms

The Notebook can be set to alarm when the battery power level is reduced or when it reaches a critical low level. The Notebook can also be set automatically to enter a low-power mode when the battery reaches a specified power level.

The following table lists the default alarm settings.

Alarms Tab Default Settings		
Alarm	**Default**	**Alarm Action**
Low Battery	10%	Notification: Text Power Mode: No Action
Critical Battery	0%	Notification: No Action Power Mode: Hibernation

CAUTION: The settings on the Alarms tab are preset for the Notebook to run at its best. Changing any of these settings could cause the Notebook to function improperly. It is recommended that these settings be left at their default values.

SpeedStep Technology Modes

Does Era have SpeedStep? If so, are the settings listed below correct?

SpeedStep Technology features several speed options for processor response to low-power conditions. These include the following settings:

- **Maximum Performance**: always at high speed
- **Battery Optimized**: always at low speed
- **Reversed**: opposite recommended
- **Recommended**: performance on AC, Battery Optimized on Battery
- **Disabled**: no run time support, high speed

SpeedStep options can be accessed in three ways:

- Access **F10** Setup during startup and select the **Advanced** screen.
- Click **Start>Settings>Control Panel>Power Options>Intel(R) SpeedStep(TM) technology** tab.
- Double-click the Flag icon on the Windows taskbar to open the **Intel(R) SpeedStep(TM) technology** dialog box.

Low-Power Modes

Compaq Presario 1200 Series Notebook Computers have two levels of low-power management: **Hibernation** and **Standby** (also known as *Sleep* mode).

Hibernation

Hibernation helps conserve battery life and protect data. Your Notebook automatically enters Hibernation mode when the battery has little power left or when the Notebook (operating on battery power) is in Standby mode for more than one hour. As the Notebook enters Hibernation, it automatically stores the contents of the Notebook memory to the hard drive before it shuts down. When the Notebook comes out of Hibernation, it returns to its former state.

Activate Hibernation mode by pressing the **Power** button once.

To restart the Notebook, press the **Power** button once. When the Notebook enters or wakes from Hibernation mode, a Progress window is displayed on the screen.

Standby

Standby is a low-power mode, also referred to as *Sleep* mode. Selecting Standby mode instead of turning off the Notebook has two advantages: It allows the Notebook to wake up faster than turning it completely off; and it saves more power than the active (On) mode.

To activate Standby/Sleep mode, complete one of the following:

- Press **Fn+F4**.
- Click **Start,** select the **Shut Down** option, and click **Standby**.

△ **CAUTION:** The Notebook maintains system information and open files while in Standby mode. However, unsaved information is lost if the Notebook is turned off prior to system wake-up, or if a power loss occurs while using the AC adapter.

The following table shows the conditions and indicators for entering and exiting the various power management modes, Standby, Hibernation, and Off.

Power Management Modes			
Standby	**Activation**	**Deactivation**	**Indicators**
Manual	Press **Fn+F4** key combination or click the **Start** button on the Windows taskbar, then point to **Shutdown** and click **Standby**.	Press any key.	Flashing **Power** light*
Time-Out Default	15 minutes if using battery power. Notebook will not automatically enter Standby mode if using AC Power.		

Power Management Modes			
Hibernate	**Activation**	**Deactivation**	**Indicators**
Manual	Press **Power** button once.	Press **Power** button once.	**Power** light is off, screen is blank**
Time-Out Default	When battery is low or after 1 hour of Standby. Notebook will not automatically enter Hibernation mode if using AC Power.	Press **Power** button once.	**Power** light is off, screen is blank**

Power Management Modes			
Off	**Activation**	**Deactivation**	**Indicators**
Standard	Perform normal Windows shutdown using the **Start** button on the Windows taskbar.	Press **Power** button once.	**Power** light is off, screen is blank.
Manual	Press and hold down the **Power** button for 4 sec.		

Important: The manual shutdown mode is not recommended unless the standard shutdown mode is unsuccessful.

Battery Operating Life

Battery operating life is affected by variables such as:

- Power conservation settings
- Hardware configuration
- Software application options
- Display brightness
- Hard drive usage
- Changes in operating temperature
- Type and number of installed PC cards

For more information on increasing battery-pack operating time, conditioning the battery pack, and disposing of a used battery pack, refer to *Battery Pack Operations*.

Servicing the Notebook - Full Off Mode

The Notebook must be turned off completely (Off mode) when installing or replacing components in the system. Follow the instructions for properly putting the Notebook into Off mode, unplugging it from the outlet, and removing the battery (see Battery Pack Removal Sequence).

Rebooting after a Lockup

To reboot the Notebook (from a cold start) when the keyboard is frozen or the screen is locked, press and hold down the Power button for at least four seconds; this causes a manual shutdown. Then, restart your Notebook with a single press of the **Power** button.

If the Notebook still does not recover, press the **Power** button and hold for four seconds to shut it down, then remove the battery or unplug the AC power for at least 30 seconds. Reinsert the battery or reconnect AC power and press the **Power** button once to reboot.

Recovering from a Loss of Electrical Power

Loss of electrical power causes the Notebook to turn off automatically. This may cause loss of data because the Microsoft Windows operating system is not able to close all files and programs properly.

Loss of power may be caused by one of the following:

- Electrical power service is interrupted.
- The power cord is accidentally disconnected.

If power surges or sags, the display and status lights may flicker, and the Notebook may automatically restart. If an improper shutdown occurs, ScanDisk, a Microsoft Windows utility program, runs automatically once power is restored. ScanDisk determines if the improper shutdown caused any errors on the hard disk. These errors may occur if the Microsoft Windows operating system is not able to close all files properly before the shutdown. If no errors are found, the restart process continues. If ScanDisk does detect errors, follow the instructions on the screen to continue the restart process. Work that was not saved before the loss of power or shutdown may be lost.

If a power failure occurs, or the power cord disconnects while the Notebook is turned on, turn it off until normal service is restored. The next time the Notebook is turned on, ScanDisk may run to check the hard disk for errors caused by improper shutdown.

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Presario 1200 Series
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Specifications

Physical and Environmental

Specifications	U.S.	Metric
(Models with 12.1in display)		
Height	1.97in	5.0cm
Depth	12.20in	31.0cm
Width	10.12in	25.7cm
(Models with 13.0in display)		
Height	1.97in	5.0cm
Depth	12.33in	31.3cm
Width	10.12in	25.7cm
Weight (varies by model)	7.19lbs or 7.36lbs	3260g or 3340g
Stand-Alone (Battery Pack) Power Requirements	**NiMH**	**Li-Ion**
Nominal Operation	W @ 9.6V	W @ 14.8V
Maximum Average	W @ 9.6V	W @ 14.8V
Peak Operation	W @ 9.6V	W @ 14.8V
AC Power Requirements		
Operating Voltage	100-240V	
Operating Current	0.8/0.4A RMS	
Operating Frequency	47-63Hz	
	(Meets IEC 801-4 and 801-5)	
Maximum Transient Voltage	1kV for 50ns	
Temperature		
Operating	50° to 95°F	10°C to 35°C
Nonoperating	-4° to 140°F	-20°C to 60°C
Relative Humidity (noncondensing)		
Operating	10 to 90%	35 to 90%
Nonoperating (tw = 38.7°C max)	5 to 95%	60 to 95%
Altitude		
Operating	0 to 10,000ft	0 to 3.15km
Nonoperating	0 to 30,000ft	0 to 10.14km

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Specifications	U.S.	Metric
Shock		
Operating	10G, 11ms, half sine	
Nonoperating	240G, 2ms, half sine	
Vibration		
Operating	0.55G, 0.25 Oct/Min sweep rate	
Nonoperating	1.5G, 0.25 Oct/Min sweep rate	
NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. Compaq Presario 1200 Series Portable Notebooks operate well within this range of temperatures.		

System Interrupts

IRQ	Device(s)
0	System Timer
1	Standard 101/102-Key or Microsoft Natural Keyboard
2	Programmable Interrupt Controller
3	IRQ Holder for PCI Steering
3	ALi PCI to USB Open Host Controller
4	Communications Port (COM1)
5	PCI Fast Ethernet DEC 21143 Based Adapter
5	ESS SOLO-1 PCI AudioDrive
6	Standard Floppy Disk Controller
7	Printer Port (LPT1)
8	System CMOS/Real Time Clock
9	RAGE LT PRO AGP 2X (English)
9	IRQ Holder for PCI Steering
10	Texas Instruments PCI-1211 CardBus Controller
10	IRQ Holder for PCI Steering
10	Lucent 56K V.90 PCI Data Fax Modem
12	Synaptics PS/2 TouchPad
13	Numeric Data Processor
14	ALi M5229 PCI Bus Master IDE Controller

IRQ	Device(s)
14	Primary IDE Controller (dual fifo)
15	ALi M5229 PCI Bus Master IDE Controller
15	Secondary IDE Controller (dual fifo)

System DMA

DMA	Device(s)
0	Free
1	ESS SOLO-1 DOS Emulation
2	Standard Floppy Disk Controller
3	Free
4	Direct Memory Access Controller
5	Free

System I/O Addresses

I/O Address	System Function (Shipping Configuration)
0000 - 000Fh	Direct Memory Access Controller
0020h - 0021h	Programmable Interrupt Controller
0040h - 0043h	System Timer
0060h - x0060h	Standard 101/102-Key or Microsoft Natural Keyboard
0061h - x0061h	System Speaker
0064h - x0064h	Standard 101/102-Key or Microsoft Natural Keyboard
0070h - 0071h	System CMOS/Real Time Clock
0080h - 0080h	Motherboard resources
0081h - 008Fh	Direct Memory Access Controller
0092h - 0092h	Motherboard resources
00A0h - 00A1h	Programmable Interrupt Controller
00B1h - 00B3h	Motherboard Resources
00C0h - 00DFh	Direct Memory Access Controller
00EAh - 00EBh	Motherboard Resources

I/O Address	System Function (Shipping Configuration)
00F0h - 00FFh	Numeric Data Processor
0100h - 010Fh	Motherboard Resources
0170h - 0177h	ALi M5229 PCI Bus Master IDE Controller
0170h - 0177h	Secondary IDE Controller (dual fifo)
01F0h - 01F7h	ALi M5229 PCI Bus Master IDE Controller
0200h - 0203h	Gameport Joystick
0220h - 022Fh	ESS SOLO-1 DOS Emulation
0330h - 0331h	ESS SOLO-1 DOS Emulation
0376h - 0376h	Secondary IDE Controller (dual fifo)
0376h - 0376h	ALi M5229 PCI Bus Master IDE Controller
0378h - 037Fh	Printer Port (LPT1)
0388h - 038Bh	ESS SOLO-1 DOS Emulation
03B0h - 03BBh	RAGE LT PRO AGP 2X (English)
03C0h - 03DFh	RAGE LT PRO AGP 2X (English)
03F0h - 03F5h	Standard Floppy Disk Controller
03F6h - 03F6h	Primary IDE Controller (dual fifo)
03F6h - 03F6h	ALi M5229 PCI Bus Master IDE Controller
03F7h - 03F7h	Standard Floppy Disk Controller
03F8h - 03FFh	Communications Port (COM1)
040Bh - 040Bh	Motherboard Resources
040Dh - 04D1h	Motherboard Resources
04D6h - 04D6h	Motherboard Resources
0CF8h - 0CFFh	PCI Bus
1000h - 103Fh	Motherboard Resources
1040h - 105Fh	Motherboard Resources
1060h - 106Fh	ESS SOLO-1 PCI AudioDrive
1070h - 107Fh	ESS SOLO-1 PCI AudioDrive
1080h - 10FFh	PCI Fast Ethernet DEC 21143 Based Adapter
1400h - 14FFh	Lucent 56K V.90 PCI DF Modem
1800h - 183Fh	ESS SOLO-1 PCI AudioDrive
1840h - 1847h	Primary IDE Controller (dual fifo)

I/O Address	System Function (Shipping Configuration)
1840h - 184Fh	ALi M5229 PCI Bus Master IDE Controller
1848h - 184Fh	Secondary IDE Controller (dual fifo)
1850h - 1853h	ESS SOLO-1 PCI AudioDrive
1854h - 1857h	ESS SOLO-1 PCI AudioDrive
1858h - 185Fh	Lucent 56K V.90 PCI Data Fax Modem
2000h - 2FFFh	PCI standard PCI-to-PCI bridge
2000h - 20FFh	RAGE LT PRO AGP 2X (English)

System Memory Catalog

Memory Address	Device(s)
00000000h - 0009FFFFh	System Board Extension for PnP BIOS
000A0000h - 000AFFFFh	RAGE LT PRO AGP 2X (English)
000B0000h - 000BFFFFh	RAGE LT PRO AGP 2X (English)
000C0000h - 000CBFFFh	RAGE LT PRO AGP 2X (English)
000DC000h - 000DFFFFh	Motherboard Resources
000E0000h - 000FFFFFh	System Board Extension for PnP BIOS
00100000h - 01FFFFFFh	System Board Extension for PnP BIOS
0C000000h - 0C000FFFh	Texas Instruments PCI-1211 CardBus Controller
E0000000h - E3FFFFFFh	ALi M1541 AGP System Controller
FC000000h - FCFFFFFFh	ALi PCI to USB Open Host Controller
FC001000h - FC0010FFh	Lucent 56K V.90 PCI Data Fax Modem
FC001400h - FC0017FFh	PCI Fast Ethernet DEC 21143 Based Adapter
FC100000h - FDFFFFFFh	PCI Standard PCI-to-PCI bridge
FC100000h - FC100FFFh	RAGE LT PRO AGP 2X (English)
FC120000h - FC13FFFFh	RAGE LT PRO AGP 2X (English)
FD000000h - FDFFFFFFh	RAGE LT PRO AGP 2X (English)
FFFC0000h - FFFFFFFFh	Motherboard Resources

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Display Information

12.1 inch (Diagonal) HPA Display			12.1 inch (Diagonal) TFT Display		
Specification	**U.S.**	**Metric**	**Specification**	**U.S.**	**Metric**
Active Area Height x Width	9.56 x 7.17in	245 x 183.8mm	**Active Area** Height x Width	Info. not available	Info. not available
Height	10.7in	275.0mm	**Height**	Info. not available	Info. not available
Depth	0.31in	8.0mm	**Depth**	Info. not available	Info. not available
Width	7.9in	202.5mm	**Width**	Info. not available	Info. not available
Response Time	150ms		**Response Time**	50ms	
Contrast Ratio	40:1		**Contrast Ratio**	150:1	
Brightness	80nits Avg		**Brightness**	150nits Avg	
Refresh Rate	120-150Hz		**Refresh Rate**	60Hz	

13.0 inch (Diagonal) HPA Display		
Specification	**U.S.**	**Metric**
Active Area Height x Width	10.39 x 7.79in	264.0 x 198.0mm
Height	8.58in	218.0mm
Depth	0.31in	8.0mm
Width	11.6in	295.0mm
Response Time	150ms	
Contrast Ratio	50:1	
Brightness	100nits Avg	
Refresh Rate	120-150Hz	

Memory Expansion

Base System Memory	Expansion Board Memory	Total Memory
32Mb	32Mb	64Mb
32Mb	64Mb	96Mb
32Mb	128Mb	160Mb
64Mb	32Mb	96Mb
64Mb	64Mb	128Mb
64Mb	128Mb	192Mb

Diskette Drive

Specifications	3.5 in Drive
Diskette Size	3.5in
Drive Size	Height 0.5in / 1.27cm
Bytes per Sector	512
Sectors per Track High Density Low Density	 18 (1.44Mb/ 15 (1.2Mb) 9
Track per Side High Density Low Density	 80 80
Access Times Track-to-Track (high/low) Average Setting Time Latency Average	 3ms / 6ms 94ms / 174ms 15ms 100
No. Read/Write Heads	2

Hard Drive

Specifications	5.0Gb	6.0Gb
Drive Type	Info. not available	Info. not available
Logical Configuration Cylinders Heads Sectors per Track Bytes per Sector	Info. not available	Info. not available
Seek Times Single Track Average Maximum Full Stroke	Info. not available	Info. not available
Transfer Rate at interface	Info. not available	Info. not available
Sector Interleave	Info. not available	Info. not available
Buffer Size	Info. not available	Info. not available

CD or DVD Drive

Specifications	24X CD-ROM Drive	6X DVD Drive
Applicable Disk	CD-DA, CD-ROM, CD-ROM XA, CD-1, Photo CD (multisession), Video CD, CD-Extra (CD+), CD-G, CD-RW	
Disc Dimensions Center hole diameter Disc Diameter Disc Thickness	 15mm 12cm, 8cm 1.2mm	
Weight Disc Drive	Info. not available	
Rotational Speed	Info. not available	

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Specifications	24X CD-ROM Drive	6X DVD Drive
Track Pitch	1.6um	
Access Time Typical (including setting) Average Random	 110ms Info not available	
Audio Output Level Line out Headphone	 +/- 0.27Vrms none	
Transfer Rate Typical (including setting) Sustained	Info. not available	
Cache Buffer Capacity	128Kb	
Startup/Spin-up Time	<8s	
Stop Time	<4s	

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Pin Assignments

This section provides connector pin assignment tables for Compaq Presario 1200XL series portable Notebook computers. For more information on connectors, refer to the section on Rear Connectors.

> **Note:** The signals in all tables of this section are considered active high unless otherwise indicated by an asterisk (*).

Parallel Connector

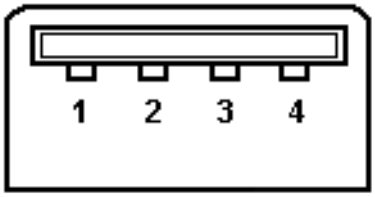
Pin Assignments			
Pin	**Signal**	**Pin**	**Signal**
1	Strobe*	10	Acknowledge*
2	Data Bit 0	11	Busy
3	Data Bit 1	12	Paper Out
4	Data Bit 2	13	Select
5	Data Bit 3	14	Auto Linefeed*
6	Data Bit 4	15	Error*
7	Data Bit 5	16	Initialize Printer*
8	Data Bit 6	17	Select In*
9	Data Bit 7	18-25	Signal Ground

** = Active low*

Serial Connector

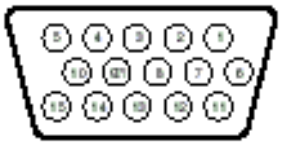
Pin Assignments			
Pin	**Signal**	**Pin**	**Signal**
1	Carrier Detect	6	Data Set Ready
2	Receive Data	7	Ready to Send
3	Transmit Data	8	Clear to Send
4	Data Terminal Ready	9	Ring Indicator
5	Signal Ground		

Universal Serial Bus (USB) Connectors



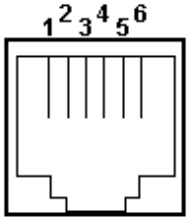
Pin Assignments			
Pin	**Signal**	**Pin**	**Signal**
1	+5V	3	Data +
2	Data -	4	Ground

External VGA Monitor Connector



External VGA Monitor Connector			
Pin	**Signal**	**Pin**	**Signal**
1	Red Analog	9	Not connected
2	Green Analog	10	Ground
3	Blue Analog	11	Monitor Detect
4	Not connected	12	DDC2B Data
5	Ground	13	Horizontal Sync
6	Ground Analog	14	Vertical Sync
7	Ground Analog	15	DDC2B Clock
8	Ground Analog		

Modem Connector



Pin Assignments			
Pin	**Signal**	**Pin**	**Signal**
1	Unused	4	Ring
2	Unused	5	Unused
3	Tip	6	Unused

Keyboard/Mouse Connector

Pin Assignments			
Pin	**Signal**	**Pin**	**Signal**
1	Data 1	4	+5 V
2	Data 2	5	Clock 1
3	Ground	6	Clock 2

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Battery Operations

This section covers the following information concerning battery pack operating time:

- Increasing Battery Pack Operating Life
- Conditioning a Battery Pack
- Disposing of a Used Battery Pack

Increasing Battery Pack Operating Life

Battery pack operating life depends on several variables. To avoid unnecessary replacement, consider the following variables when determining how long a charged battery pack should last:

- Power management settings
- Hardware configuration
- Software applications
- Installed options
- Display brightness
- Hard drive usage
- Changes in operating temperature
- Type and number of installed PC Cards

Note: The power consumption requirements for PC Cards vary widely. Some cards drain the battery pack very rapidly.

Battery pack operating life can be increased by as much as 50 percent by controlling the energy required by the Notebook and the energy stored in the battery pack.

Minimizing the Energy Required

To minimize the energy required by the Notebook, follow these steps:

- Set the power conservation levels in the Power Management utility to **Maximum**.
- Customize the timeout value to work more efficiently with the applications. The amount of battery life depends on the values selected.

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Maximizing the Energy Stored

To maximize the energy stored in the battery pack, follow these guidelines:

- Condition the battery pack as described below at least every 30 days to improve overall battery performance.
- Keep a battery pack in the Notebook when using it with AC power to supply the battery pack with a constant trickle charge.
- Store the battery pack in a cool, dry place when not in use.

Conditioning a Battery Pack

⚠ **CAUTION:** To avoid a loss of data, ensure that all data is saved before discharging a battery pack.

To condition a battery pack, complete the following steps:

1. Plug in the AC adapter and allow the battery to charge until the Battery Charge Light on the front bezel of the Notebook goes out. Do not unplug the AC adapter until the charging light is off.
2. Unplug the AC adapter and allow the battery to drain until the computer enters Hibernation mode and turns itself off.

   Note: You may use the Notebook while the battery is draining.

   ⚠ **CAUTION:** Do not plug in the AC adapter during this process. If the AC adapter is plugged in while the battery is draining, begin again with step 1 of the conditioning process.

3. The battery is reconditioned.
4. Resume normal use of the Notebook with AC power.

The table below shows battery pack charge times by model.

Approximate Battery Charge Time		
Computer	**On Line**	**Off Line**
Li-Ion Battery Pack	4.5 hours premature termination	2.50 hr
NiMH Battery Pack	4.0 hours premature termination	2.0 hr

Disposing of a Used Battery Pack

In the interest of safeguarding our environment, Compaq Computer Corporation recommends that nickel metal hydride (NiMH) and lithium ion (Li-Ion) battery packs be recycled. Battery packs should be handled in accordance with country, state, province, and/or local regulations.

⚠ **CAUTION:** Never attempt to open or service a battery pack. Opening a battery pack not only damages the pack and makes it unusable, but also exposes potentially harmful battery components.

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Troubleshooting

This section covers troubleshooting information for Compaq Presario 1200 Series Portable Notebook Computers. The basic steps in troubleshooting include:

1. Preliminary Steps
2. The Power-On Self Test (POST)
3. The recommended actions described in the diagnostic tables in case you are unable to run POST, or if POST displays an error message.

When following the recommended actions in the Sections on Power-On Self Test (POST) and Diagnostic Error Codes, perform the steps in the order listed above. Rerun POST after each recommended action until the problem is solved, and if no error message occurs. Once the problem is solved, do not continue with any recommended actions remaining.

> **Note:** If the problem is intermittent, check your computer several times to verify that the problem is solved.

Preliminary Steps

Before running Power-On Self Test (POST), complete the following steps:

1. If a Power-on password is established, type the password and press the **Enter** key. If you do not know the password, clear the password (See Clearing the Power-On Password).
2. Run Compaq Diagnostics.
3. Turn off the computer and its external devices.
4. Disconnect any external devices that you do not want to test. Do not disconnect the printer if you want to test it or use it to log error messages.

   Important: If the problem only occurs when an external device is connected to the computer, the problem may be related to the external device or its cable. Verify this by running POST with and without the external device connected.
5. Install loopback plugs in the serial and parallel connectors if you would like to test these ports.
6. Ensure that the hard drive is installed in the notebook.

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7. Ensure that the battery pack is inserted in the notebook and that it is connected to an external AC power source.

When these preliminary steps are completed, you are ready to run POST.

Clearing the Power-On Password

(Removing/Replacing the RTC Battery)

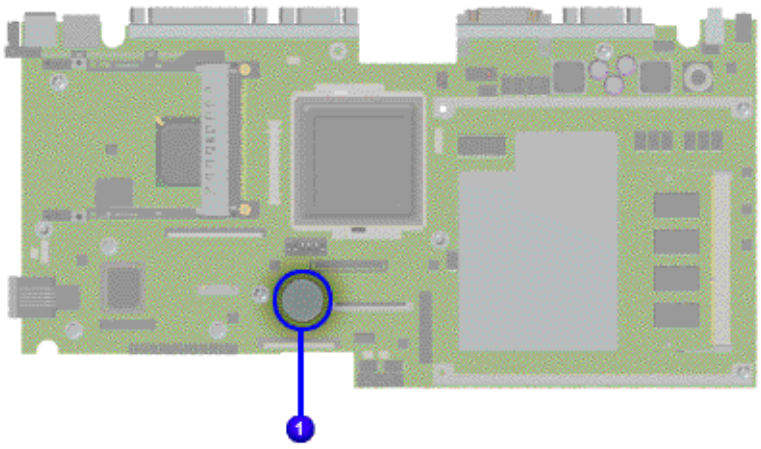
> **Note:** Clearing the Power-on password also removes all notebook Setup attributes that are programmed in the CMOS.

If you do not know the password, clear it by performing the following steps:

1. Turn off the Notebook.
2. Disconnect the power cord.
3. Remove the battery pack.
4. Remove the Palmrest cover with the TouchPad.
5. Remove the Heatspreader.
6. Remove the keyboard.

Continued on the next page.

7. To clear the password, remove the RTC battery ❶ for 30 seconds and replace it.



8. Reassemble the notebook.
9. Turn on the notebook to verify that the power-on password has been cleared. If it has not been cleared, repeat Steps 1 through 9.

Power-On Self Test (POST)

To run POST, complete these steps:

Turn off the notebook, then turn it on again. As soon as the Compaq logo appears press the **ESC** key to clear the logo and display the POST messages as they occur.

If the notebook does not beep, POST has successfully completed its test and detected no errors. POST then re-boots from the hard drive, or from a bootable diskette if one is installed in the diskette drive.

However, if POST detects errors, these are indicated by messages on the display screen and/or audible messages. A list of the POST error codes and what they mean is shown in the table below.

Note: If the system is not functioning well enough to run POST, or if the display is not functioning well enough to show POST error messages, refer to the Troubleshooting tables.

Power-On Self-Test Messages 102-System Board Failure	
Probable Cause	**Recommended Action**
DMA, timers, etc.	Replace the system board.

162-System Options Not Set	
Probable Cause	**Recommended Action**
Incorrect configuration	Run Computer Setup.
CMOS reflects an invalid configuration setting.	Run Computer Setup.
RAM failure	1. Replace the memory modules. 2. Replace the system board.
Memory test data error	1. Replace the memory modules. 2. Replace the system board.
XX000YZZ RAM failure	Replace the system board.

XX000YZZ 201-Memory Error	
Probable Cause	**Recommended Action**
Keyboard failure	1. Ensure that no keys are depressed during POST. 2. Reconnect the keyboard with the notebook off. 3. Replace the keyboard.

301-Keyboard Error	
Probable Cause	**Recommended Action**
Keyboard failure	1. Ensure the keys are not depressed during POST. 2. Reconnect the keyboard with the notebook off. 3. Replace the keyboard.

304-Keyboard or System Unit Error	
Probable Cause	**Recommended Action**
Keyboard or system board error	1. Replace the keyboard. 2. Replace the TouchPad or mouse. 3. Replace the system board.

601-Diskette Controller Error	
Probable Cause	**Recommended Action**
Mismatch in drive type or failure in the diskette controller	1. Run Computer Checkup (TEST). 2. Check or replace cables. 3. Replace the system board.

605-Diskette Drive Error	
Probable Cause	**Recommended Action**
Mismatch in drive type	Run Computer Setup.

1780-Primary Hard Drive 0 Failure	
Probable Cause	**Recommended Action**
Disk 0 failed to respond	1. Run Computer Checkup (TEST). 2. Replace the hard drive.
Hard drive format error	1. Run Computer Checkup (TEST). 2. Replace the hard drive.

1782-Hard Drive Controller	
Probable Cause	**Recommended Action**
Hard drive controller failure	1. Run Computer Setup. 2. Replace the hard drive.

Compaq Diagnostics

Compaq Diagnostics is installed on the hard drive of the notebook. Run the Diagnostic utilities when you want to view or test system information and if you have installed or connected devices. If you run Compaq Diagnostics from a diskette, ensure that the diagnostic program is version 10.11 or later.

The Diagnostics menu includes the following utilities:

- Computer Checkup (TEST)
- View System Information (INSPECT)
- Diagnostic Error Codes
- Troubleshooting without Diagnostics
- Before Replacing Parts
- Solving Minor Problems
- Solving Hard Drive Problems
- Solving Hardware Installation Problems
- Solving Keyboard/Numeric Keypad Problems
- Solving Memory Problems
- Solving PC Card Problems
- Solving Power Problems
- Solving Printer Problems
- Solving TouchPad/Pointing Device Problems
- Contacting Compaq Support

If you have a problem you cannot solve, run the Diagnostics utilities before calling for support. Run Computer Checkup and select to save the device list to a file and to print or to save the log of errors. Run the View System Information (INSPECT) utility and select to print or to save that information. Have the files or the printed information available when you call for support.

Computer Checkup (TEST)

Computer Checkup (TEST) determines if the various computer components and devices are recognized by the system and are functioning properly. You can display, print, or save the information generated by Computer Checkup.

Follow these steps to run Computer Checkup:

1. Plug the notebook into an external power source. (A low battery condition could interrupt the program.)
2. Turn on the external devices that you want to test. Connect the printer if you want to print a log of error messages.
3. Insert the Compaq Diagnostics diskette in drive A.
4. Turn on or restart the notebook. The notebook starts from drive A, and the Diagnostics Welcome screen is displayed.
5. Press **Enter** to continue. The Diagnostics menu is displayed.
6. Select **Computer Checkup** from the **Diagnostics** menu. A Test Option menu is displayed.
7. Select **View the Device List** from the **Test Option** menu. A list of the installed Compaq devices is displayed.
8. If the list of installed devices is correct, select **OK**. The Test Option menu is displayed.

   Note: If the list is incorrect, ensure that any new devices are installed properly.

   Select one of the following from the **Test Option** menu:

   - **Quick Check Diagnostics**. Runs a quick, general test on each device with a minimal number of prompts. If errors occur, they display when the testing is complete. You cannot print or save the error messages.
   - **Automatic Diagnostics**. Runs unattended, maximum testing of each device with minimal prompts. You can choose how many times to run the tests, to stop on errors, or to print or save a log of errors.
   - **Prompted Diagnostics**. Allows maximum control over testing the devices. You can choose attended or unattended testing, decide to stop on errors, or choose to print or save a log of errors.
9. Follow the instructions on the screen as the devices are tested. When testing is complete, the Test Option menu is displayed.

10. Exit the Test Option menu and the Diagnostics menu.

View System Information (INSPECT)

The View System Information (INSPECT) utility provides information about the notebook and installed or connected devices. You can display, print, or save the information.

Follow these steps to run View System Information (INSPECT) from the Compaq Diagnostics diskette:

1. Turn on the external devices that you want to test. Connect the printer if you want to print the information.
2. Insert the Compaq Diagnostics diskette in drive A.
3. Turn on or restart the computer. The computer starts from drive A, and the Diagnostics Welcome screen is displayed.
4. Press **Enter** to continue. The Diagnostics menu is displayed.
5. Select **View System Information (INSPECT)** from the Diagnostics menu.
6. Select the item you want to view from the following list:

System	Memory
ROM	Audio
Keyboard	Operating system
System ports	System files
System storage	Windows files
Graphics	

7. Follow the on-screen instructions to cycle through the screens, return to the list and choose another item, or print the information.

Diagnostic Error Codes

Diagnostic error codes are displayed if the system recognizes a problem while running the Compaq Diagnostic program. These error codes help identify subassemblies with possible damage or defects.

The following tables list error codes, a description of the error condition, and the action required to resolve the error condition.

> **Important:** Retest the system after completing each step. If the problem is resolved, do not proceed with the remaining steps.

For the removal and replacement of a particular subassembly, see Removal and Replacement Procedures.

Select error codes by number or type:

101 through 114 (pg 10)	Processor Test
200 through 215 (pg 10)	Memory Test
300 through 304 (pg 11)	Keyboard Test
401 through 403 (pg 11)	Parallel Printer Test
501 through 516 (pg 14)	Video Test
600 through 699 (pg 12)	Diskette Drive Test
1101 (pg 12)	Serial Test
1701 through 1736 (pg 13)	Hard Drive Test
2402 through 2456 (pg 15)	Video Test
2419 through 2456 (pg 16)	Video Test
2458 through 2480 (pg 16)	Video Test
3206 (pg 17)	Audio Test
3301 through 6623 (pg 17)	DVD or CD Test
8601 through 8602 (pg 17)	TouchPad Pointing Device Test

Processor Test Error Codes		
Error Code	**Description**	**Recommended Action**
101-xx	CPU test failed	Replace the processor and retest.
102-xx	Coprocessor or Weitek Error	1. Run the Configuration and Diagnostics Utilities. 2. Replace the processor board and retest.
103-xx	DMA page registers test failed	Replace the system board and retest.
104-xx	Interrupt controller master test failed	
105-xx	Port 61 error	
106-xx	Keyboard controller self-test failed	
107-xx	CMOS RAM test failed	
108-xx	CMOS interrupt test failed	
109-xx	CMOS clock test failed	
110-xx	Programmable timer load data test failed	
113-xx	Protected mode test failed	
114-01	Speaker test failed	1. Check system configuration. 2. Verify cable connections to speaker. 3. Replace the system board and retest.

Memory Test Error Codes		
Error Code	**Description**	**Recommended Action**
200-xx	Memory machine ID test failed	1. Flash the system ROM and retest. 2. Replace the system board and retest.
202-xx	Memory system ROM checksum failed	
203-xx	Write/Read test failed	1. Remove the memory module and retest. 2. Install a new memory module and retest.
204-xx	Address test failed	
211-xx	Random pattern test failed	
214-xx	Noise test failed	
215-xx	Random address test failed	

Keyboard Test Error Codes		
Error Code	**Description**	**Recommended Action**
300-xx	Failed ID Test	1. Check the keyboard connection. If disconnected, turn off the computer and reconnect the keyboard. 2. Replace the keyboard and retest. 3. Replace the system board and retest.
301-xx	Failed Self Test/Interface Test	
302-xx	Failed Individual Key Test	
304-xx	Failed Keyboard Repeat Test	

Parallel Printer Test Error Codes		
Error Code	**Description**	**Recommended Action**
401-xx	Printer failed or not connected	1. Connect the printer. 2. Check power to the printer. 3. Install the loop-back connector and retest. 4. Check port and IRQ configuration. 5. Replace the system board and retest.
402-xx	Failed Port Test	
403-xx	Printer pattern test failed	

Diskette Drive Test Error Codes		
Error Code	**Description**	**Recommended Action**
600-xx	Diskette ID drive types test failed	1. Replace the diskette media and retest. 2. Check and/or replace the diskette power and signal cables and retest. 3. Replace the diskette and retest. 4. Replace the system board and retest.
601-xx	Diskette format failed	
602-xx	Diskette read test failed	
603-xx	Diskette write, read, compare test failed	
604-xx	Diskette random read test failed	
605-xx	Diskette ID media failed	
606-xx	Diskette speed test failed	
609-xx	Diskette reset controller test failed	
610-xx	Diskette change line test	
697-xx	Diskette type error	
698-xx	Diskette drive speed not within limits	
699-xx	Diskette drive/media ID error	1. Replace media. 2. Run the Configuration and Diagnostics Utilities.

Serial Test Error Codes		
Error Code	**Description**	**Recommended Action**
1101-xx	Serial port test failed	1. Check port configuration. 2. Replace the system board and retest.

Hard Drive Test Error Codes		
Error Code	**Description**	**Recommended Action**
1701-xx	Hard drive format test failed	1. Run the Configuration and Diagnostics Utilities and verify drive type. 2. Verify that all secondary drives have secondary drive capability. 3. Replace the hard drive and retest. 4. Replace the system board and retest.
1702-xx	Hard drive read test failed	
1703-xx	Hard drive write/read/compare test failed	
1704-xx	Hard drive random seek test failed	
1705-xx	Hard drive controller test failed	
1706-xx	Hard drive ready test failed	
1707-xx	Hard drive recalibration test failed	
1708-xx	Hard drive format bad track test failed	
1709-xx	Hard drive reset controller test failed	
1710-xx	Hard drive park head test failed	
1715-xx	Hard drive head select test failed	
1716-xx	Hard drive conditional format test failed	
1717-xx	Hard drive ECC* test failed	
1719-xx	Hard drive power mode test failed	
1724-xx	Network preparation test failed	
1736-xx	Drive monitoring test failed	

**ECC = Error Correction Code*

Video Test Error Codes		
Error Code	**Description**	**Recommended Action**
501-xx	Video controller test failed	The following steps apply to error codes 501-xx through 516-xx: 1. Disconnect external monitor and test with internal LCD display. 2. Replace the display assembly and retest. 3. Replace the system board and retest.
502-xx	Video memory test failed	
503-xx	Video attribute test failed	
504-xx	Video character set test failed	
505-xx	Video 80 x 25 mode 9 x 14 character cell test failed	
506-xx	Video 80 x 25 mode 8 x 8 character cell test failed	
507-xx	Video 40 x 25 mode test failed	
508-xx	Video 320 x 200 mode color set 0 test failed	
509-xx	Video 320 x 200 mode color set 1 test failed	
510-xx	Video 640 x 200 mode test failed	
511-xx	Video screen memory page test failed	
512-xx	Video gray scale test failed	
514-xx	Video white screen test failed	
516-xx	Video noise pattern test failed	

Video Test Error Codes (*Continued*)		
Error Code	**Description**	**Recommended Action**
2402-xx	Video memory test failed	The following steps apply to error codes 2402-xx through 2456-xx: 1. Run the Configuration and Diagnostics Utilities. 2. Replace the display assembly and retest. 3. Replace the system board and retest.
2403-xx	Video attribute test failed	
2404-xx	Video character set test failed	
2405-xx	Video 80 x 25 mode 9 x 14 character cell test failed	
2406-xx	Video 80 x 25 mode 8 x 8 character cell test failed	
2408-xx	Video 320 x 200 mode color set 0 test failed	
2409-xx	Video 320 x 200 mode color set 1 test failed	
2410-xx	Video 640 x 200 mode test failed	
2411-xx	Video screen memory page test failed	
2412-xx	Video gray scale test failed	
2414-xx	Video white screen test failed	
2416-xx	Video noise pattern test failed	
2418-xx	ECG/VGC memory test failed	

Video Test Error Codes (*Continued*)		
Error Code	**Description**	**Recommended Action**
2419-xx	ECG/VGC ROM checksum test failed	1. Run the Configuration and Diagnostics Utilities. 2. Disconnect external monitor and test with internal LCD display. 3. Replace the display assembly and retest. 4. Replace the system board and retest.
2421-xx	ECG/VGC 640 x 200 graphics mode test failed	
2422-xx	ECG/VGC 640 x 350 16 color set test failed	
2423-xx	ECG/VGC 640 x 350 64 color set test failed	
2424-xx	ECG/VGC monochrome text mode test failed	
2425-xx	ECG/VGC monochrome graphics mode test failed	
2431-xx	640 x 480 graphics test failure	
2432-xx	320 x 200 graphics (256 color mode) test failure	
2448-xx	Advanced VGA Controller test failed	
2451-xx	132-column Advanced VGA test failed	
2456-xx	Advanced VGA 256 Color test failed	

Video Test Error Codes (*Continued*)		
Error Code	**Description**	**Recommended Action**
2458-xx	Advanced VGA BitBLT test failed	The following applies to error codes 2458-xx through 2480-xx: Replace the system board and retest.
2468-xx	Advanced VGA DAC test failed	
2477-xx	Advanced VGA data path test failed	
2478-xx	Advanced VGA BitBLT test failed	
2480-xx	Advanced VGA LineDraw test failed	

Audio Test Error Codes		
Error Code	**Description**	**Recommended Action**
3206-xx	Audio System Internal Error	Replace the system board and retest.

TouchPad/Pointing Device Interface Test Error Codes		
Error Code	**Description**	**Recommended Action**
8601-xx	Mouse test failed	1. Replace the TouchPad and retest. 2. Replace the system board and retest.
8602-xx	Interface test failed	

DVD or CD Drive Test Error Codes		
Error Code	**Description**	**Recommended Action**
3301-xx	DVD or CD drive read test failed	1. Replace the DVD or CD and retest. 2. Verify that the speakers are connected. 3. Verify that drivers are loaded and properly installed. 4. Replace the DVD or CD drive and retest. 5. Replace the system board and retest.
3305-xx	DVD or CD drive seek test failed	
6600-xx	ID test failed	
6605-xx	Read test failed	
6608-xx	Controller test failed	
6623-xx	Random read test failed	

Troubleshooting without Diagnostics

This section provides information about how to identify and correct some common hardware, memory, and software problems. It also explains several types of common messages that may be displayed on the screen. The following pages contain troubleshooting information on:

Audio
Battery
CD or DVD Drive
Diskette Drive
Display
Hard Drive
Hardware Installation
Memory
PC Card
Power
Printer
TouchPad
Keyboard/Numeric Keypad

Since symptoms can appear to be similar, carefully match the symptoms of the computer malfunction against the problem description in the tables to avoid a misdiagnosis.

⚠ **WARNING:** To avoid a potential shock hazard during troubleshooting procedures, disconnect all power sources before removing the keyboard cover or the display bezel.

Before Replacing Parts

Verify that cables are connected properly to the suspected defective parts.

- Run Computer Setup after connecting external devices.
- Verify that all required device drivers are installed.
- Verify that all required changes have been made to the CONFIG.SYS file.
- Verify that all required changes have been made to the AUTOEXEC.BAT file.
- Verify that all printer drivers have been installed for each application.

Solving Minor Problems

Some minor problems and possible solutions are outlined in the following tables. If the problem appears related to a software application, check the documentation provided with the software.

Solving Audio Problems

Some common audio problems and solutions are listed in the following table.

Solving Audio Problems

Problem	Probable Cause	Solution
Computer does not beep after the Power-On Self-Test (POST).	This is typical; it indicates successful completion of the Power-On Self-Test (POST).	No action is required.

Solving Battery Pack/Gauge Problems

Some common causes and solutions for battery pack problems are listed in the following table. The "Solving Power Problems" section in this chapter may also be applicable.

Solving Battery Pack/Gauge Problems

Problem	Probable Cause	Solution(s)
Computer won't turn on when battery pack is inserted and power cord is unplugged.	Battery pack is discharged.	• Connect the computer to an external power source and charge the battery pack. OR • Replace the battery pack with a fully charged battery pack.
		Check the battery connectors on the system board to verify they are evenly spaced and that they are not bent or broken.
Notebook is beeping and battery icon is blinking.	Battery charge is low.	Immediately save any open file(s). Then complete one of the following: • Connect the notebook to an external power source to charge the battery pack. • Turn off the notebook or initiate Hibernation until you can find another power source or charge the battery pack.
Battery icon on the front of the unit blinks to indicate low battery condition, but computer does not beep.	Volume is turned down too low.	Adjust the volume.
Battery icon doesn't light and battery pack won't fast charge.	Battery pack is already charged.	No action is necessary.
	Battery pack was exposed to temperature extremes.	Allow time for the battery pack to return to room temperature.
	Battery pack is at end of its life.	Replace the battery pack.

Solving Battery Pack/Gauge Problems		
Problem	**Probable Cause**	**Solution(s)**
You have to set the date and time every time you turn on the notebook.	RTC battery is dead.	Replace the RTC battery.
Battery charge does not last as long as expected.	Battery is being exposed to high temperatures or extremely cold temperatures.	Keep the battery pack within the recommended temperature range for operation or storage. • Operating Range: 50°F to 104°F (10°C to 40°C) • Storage Range: -4°F to 86°F (-20°C to 30°C) Recharge the battery pack.
	Battery has partially self-discharged.	Recharge the battery. Discharge the battery completely and then recharge it.
	Power management is disabled.	Set a power management level in Computer Setup.
	An external device or PC Card is draining the battery.	Turn off or disconnect external devices when not in use.
Battery pack is warm to the touch after charging.	Normal warming has occurred due to charging.	No action is required.
Battery pack operating time is far less than the documented average operating time.	Power management is turned off or disabled.	Enable power management in Computer Setup and in Windows Power Properties.
	An external device or PC Card is draining the battery.	Turn off or disconnect external devices when not in use.

Solving Battery Pack/Gauge Problems		
Problem	**Probable Cause**	**Solution(s)**
	Battery pack has partially self-discharged.	Condition the battery pack by fully charging, fully discharging, then fully recharging it. To maintain the charge, leave battery packs in the computer when it is connected to external power. If the notebook is disconnected from external power for more than two weeks, remove battery packs from the notebook to reduce the discharge rate.
	Battery pack is being exposed to high temperatures or extremely cold temperatures.	Keep the battery pack within the recommended temperature range for operation or storage. • Operating Range: 50°F to 104°F (10°C to 40°C) • Storage Range: -4°F to 86°F (-20°C to 30°C) Recharge the battery pack.

Solving CD and DVD Drive Problems

Some common causes and solutions for CD and DVD drive problems are listed in the following table.

Solving CD or DVD Drive Problems		
Problem	**Probable Cause**	**Solution(s)**
CD or DVD drive cannot read a Compact Disc or Digital Versatile Disc.	Disc is upside down or is improperly inserted in the CD or DVD drive.	Open the loading tray, lay the compact disc in it (label side up), then close the tray.
	CD is CD Plus or Pregap/Track 0 type.	Cannot read these type CDs in 24x. Remove the CD.

Solving Diskette Drive Problems

Some common causes and solutions for diskette drive problems are listed in the following table.

Solving Diskette Drive Problems		
Problem	**Probable Cause**	**Solution(s)**
Diskette drive cannot write to a diskette.	Diskette is write-protected.	Disable the diskette's write-protect feature or use a diskette that is not write-protected.
	Computer is writing to the wrong drive.	Check the drive letter in the path statement.
	Not enough space is left on the diskette.	Use another diskette.
	Drive error has occured.	Run Computer Checkup from the Compaq Diagnostics diskette.
	Diskette is not formatted.	Format the diskette. At the system prompt, enter: FORMAT A:
Diskette drive cannot read a diskette.	Diskette drive cannot read a diskette.	Use the type of diskette required by the drive.
	Diskette has a bad sector.	Copy files to hard drive or another diskette. Reformat bad floppy.
	Drive error has occurred.	Run Computer Checkup from the Compaq Diagnostics diskette.

Solving Diskette Drive Problems		
Problem	**Probable Cause**	**Solution(s)**
(*Continued*) Diskette drive cannot read a diskette.	Diskette is not formatted.	Format the diskette. At the system prompt, enter **FORMAT A:**
Cannot boot from diskette.	Bootable diskette is not in drive A.	Put the bootable diskette in drive A.
	Diskette Boot has incorrect setting in Computer Setup.	Run Computer Setup and set diskette as first to boot.

Solving Display Problems

This section lists some common causes and solutions for computer display and external monitor problems.

You can perform a monitor self-text on an external VGA color or monochrome monitor by disconnecting the monitor from the notebook, then completing the following steps:

1. Turn off the monitor.
2. Turn off the notebook.
3. Disconnect the monitor signal cable from the notebook.
4. Turn on the monitor and allow it to warm up for one minute.

The display should be white. A narrow black border may also appear on the left and right sides of the display. Either of these displays indicates that the monitor is working properly.

Solving Display Problems		
Problem	**Probable Cause**	**Solution(s)**
Screen is dim.	Control for brightness (if applicable) is not set properly.	Adjust the Brightness of the display by using **Fn+F7** or **Fn+F8**.
	Computer screen is in direct light.	Tilt display or move computer.
Screen is blank.	Screen save was initiated by Power Management due to lack of user activity.	Press any key or touch the TouchPad.

Solving Display Problems		
Problem	**Probable Cause**	**Solution(s)**
	Display has overheated.	If the notebook is in direct sunlight, move it and allow it to cool off.
Display is blank and the Suspend icon is flashing.	System is in Suspend mode.	Press any key or touch the TouchPad.
Internal display is blank and the screen on an external monitor displays information.	Display function was switched to the external monitor.	Use **Fn+F3** to switch between LCD or CRT.
Internal display flashes or has garbled characters when notebook is connected to external monitor.	Using 1024 x 768 or higher resolution on external monitor and have toggled back to internal display, which supports up to 800 x 600.	Restart the notebook.
The light tubes on the edge of the display panel do no light up at all and the Power-On Self-Test (POST) completes when the unit is powered up.**	Improper backlight or display cable connections	Replace the display assembly.
	Defective inverter board.	Replace the display assembly.
	Defective display cable.	Replace the display assembly.
	Defective display panel.	Replace the display assembly.
	Defective system board.	Replace the system board.
The light tubes on the edge of the display panel do not light up at all and Power-On Self-Test (POST) does not complete when the unit is powered up.**	Defective system board.	Replace the system board.
Backlight (brightness) cannot be adjusted with Fn+F7 or Fn+F8.	Improper display cable connections.	1. Reseat the display cable to the system board. 2. Replace the display assembly.

Solving Display Problems		
Problem	**Probable Cause**	**Solution(s)**
(Continued)	Defective inverter board.	Replace the display assembly.
	Defective display cable.	Replace the display assembly.
	Defective system board.	Replace the system board.

***This problem indicates that the backlight or its power circuitry has failed. If the backlight is not functioning, the POST result cannot be observed. Connect the unit to an external monitor before powering up the unit. If an external monitor is not available verify that POST is complete by opening and closing the display, listening for the single or double beep, and watching for the icons to turn on at the front of the notebook.*

Solving Display Problems Continued		
Problem	**Probable Cause**	**Solution(s)**
This display panel has a continuous pattern across it (e.g., "jailbars" pattern), has a single color on it, or has garbled graphics across the entire panel. This failure is for patterns across the entire panel (not just on one section).	Improper display cable connections	Reseat the display cable to the following until the problem is solved: 1. System board 2. Display assembly
	Defective display cable.	Replace the display assembly.
	Defective inverter board.	Replace the display assembly.
	Defective system board.	Replace the system board.
A single line, small group of lines, or block appears on the display panel. This failure occurs in only a section of the display panel.	Defective display panel.	Replace the display assembly.

Note: When you perform a "self-test" on an external VGA color or monochrome monitor, the screen should be white. A narrow black border may also appear on the left and right sides of the display. Either of these displays indicates that the monitor is working properly.

Solving Hard Drive Problems

Some common causes and solutions for hard drive problems are listed in the following table.

⚠ **CAUTION:** To prevent loss of information, always maintain an up-to-date backup of your hard drive at all times, in case of errors or failures.

Solving Hard Drive Problems

Problem	Probable Cause	Solution(s)
Reading hard drive takes an unusually long time after restarting the notebook.	System entered Hibernation due to low battery condition and is now exiting from it.	Give the system time to restore the previously saved data to its exact state before Hibernation.
Hard drive error occurs.	Hard drive has bad sectors or has failed.	Run Computer Checkup.
Hard drive does not work.	Hard drive is not seated properly.	Turn off and unplug the notebook, remove the battery pack, and remove and then reinstall the hard drive.

Solving Hardware Installation Problems

Some common causes and solutions for hardware installation problems are listed in the following table.

Solving Hardware Installation Problems		
Problem	**Probable Cause**	**Solution(s)**
A new device is not recognized as part of the computer system.	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are proplerly and securely connected.
	Power switch of new external device is not turned on.	Turn off the notebook, turn on the external device, then turn on the notebook to integrate the device with the computer system.
	Device is not seated properly.	Turn off the notebook and reinsert the device.

Solving Keyboard/Numeric Keypad Problems

Some common causes and solutions for keyboard/numeric keypad problems are listed in the following table.

Solving Keyboard/Numeric Keypad Problems		
Problem	**Probable Cause**	**Solution(s)**
Embedded numberic keypad on notebook keyboard is disabled.	Num Lock function is not enabled.	Press the **Shift+NumLk** keys to enable the Num Lock function and embedded numberic keypad. The Num Lock light on the notebook turns on.
Embedded numeric keypad is disabled and Num Lock function is on.	External numeric keypad is connected to the notebook.	Disconnect the external numeric keypad from the notebook.

Solving Memory Problems

Some common causes and solutions for memory problems are listed in the following table.

Solving Memory Problems		
Problem	**Probable Cause**	**Solution(s)**
Memory count during Power-On Self-Test (POST) is incorrect.	Optional memory expansion card is installed incorrectly, is incompatible with the computer, or is defective.	Ensure that the optional memory expansion card is installed correctly.
"Out of Memory" message is displayed on the screen or insufficient memory error occurs during operation.	System ran out of memory for the application.	Check the application documentation for memory requirements. If necessary, Install additional memory.
	Too many TSR (terminate-and-stay-resident) applications are running.	Remove from memory any TSR applications that you do not need.

Solving PC Card Problems

The following table lists some common causes and solutions for PC Card problems.

Solving PC Card Problems		
Problem	**Probable Cause**	**Solution(s)**
When turned on, the computer does not beep when a PC Card is inserted.	Card is not inserted properly.	Ensure that the card is inserted in the correct orientation.
	PC Card beeps are disabled.	Double-click the PC Card icon in the Control Panel, click the **Global Settings** tab, the enable PC Card sound effects.
	Speaker is turned off or volume is turned down.	Press **Volume** buttons to turn the speaker on, then increase the volume.

Solving PC Card Problems		
Problem	**Probable Cause**	**Solution(s)**
	PC Card drivers are not installed.	Double-click the **Add New Hardware** icon in the Control Panel for installation instructions. If PC Card or drivers are not compatible with Windows, install drivers and use the PC Card in MS-DOS mode.
	Card or card driver is not supported.	Contact a Compaq authorized service provider for a list of PC Cards tested sucessfully in Compaq PC Card platforms.
PC Card modem, fax, or network card does not work.	Card is not fully inserted into the slot or is not inserted properly.	Ensure that the card is inserted in the correct orientation.
	Telephone cord is not plugged in all the way.	Check and secure telephone connection.
	Necessary drivers are not installed (turned on).	Install drivers.
PC Card modem or fax card does not work.	You are trying to access the card using the wrong COM port.	See Specifications to verify COM port.
	The card conflicts with a serial device.	See Specifications to verify address.
	The card is not supported.	Use supported cards only.
Modem netword PC Card does not work.	Network driver is not installed or is not set up properly.	Install driver.
	Telephone cord is not properly connected.	Verify telephone connection.

Solving PC Card Problems		
Problem	**Probable Cause**	**Solution(s)**
Memory or storage card does not work.	SRAM and flash memory cards require the memory card driver to be loaded (turned on). Flash memory cards require the Microsoft FlashFile System to be loaded. Hard drives on flash mass storage cards require the PC Card ATA driver to be loaded.	Install driver.
	You are trying to access the hard drive card using the wrong drive letter.	Double-click **My Computer** to verify the drive letter assigned to the card.
	The card is not supported.	Contact a Compaq authorized service provider for a list of PC Cards tested successfully in Compaq PC Card platforms.

Solving Power Problems

Also see Solving Battery Pack/Gauge Problems in this section.

Solving Power Problems		
Problem	**Probable Cause**	**Solution(s)**
Notebook will not turn on and the battery pack is not inserted.	Notebook is not connected to a power source.	Insert battery or connect an external power source.
	Power cords to the external power source are unplugged.	Ensure that power cords connecting the computer and the external power source are plugged in properly.
	Power adapter is defective.	Replace AC Adapter and restart.

Solving Power Problems		
Problem	**Probable Cause**	**Solution(s)**
Notebook turned off while it was left unattended and the power icon is off.	System board is defective.	Replace the system board.
	System initiated Hibernation due to a critical low-battery condition.	Replace the battery pack with a fully charged battery pack or connect the notebook to an external power source. Then turn on the notebook.
	System initiated Hibernation after a preset timeout.	Turn on the notebook.

Solving Printer Problems

If you experience problems printing, run a printer self-test. Refer to the documentation provided with your printer for instructions. If the self-test fails, it is a printer-specific problem. Also refer to the printing section of your application documentation.

Solving Printer Problems		
Problem	**Probable Cause**	**Solution(s)**
Printer will not turn on.	The signal cable may not be connected properly, or the printer is unplugged.	Ensure that the signal cable is properly connected and that the power cord is connected to the electrical outlet.
Printer will not print.	Printer is not turned on or is offline.	Turn the printer on and set it to online.
	The device drivers for the application is not installed.	Refer to the printer documentation to install the correct printer driver.
	Printer that is set up for a network is not connected to the network.	Connect the printer to the network.
	Printer cable is too long, unshielded, or defective.	Replace the cable.

Solving Printer Problems		
Problem	**Probable Cause**	**Solution(s)**
	Paper tray is empty.	Fill the paper tray with paper and set the printer to online.
Printer prints garbled information.	Correct printer drivers are not installed.	Refer to the printer documentation to install the correct printer driver.
	Cable is not connected properly.	Ensure that the printer signal cable is properly connected to the notebook.
	Cable is defective.	Replace the printer cable and retest.

Solving TouchPad/Pointing Device Problems

The following table lists some common causes and solutions for TouchPad/pointing device problems.

Solving TouchPad/Pointing Device Problems		
Problem	**Probable Cause**	**Solution(s)**
TouchPad or mouse does not work.	Incorrect or no device driver is installed.	Install the device driver and add to the AUTOEXEC.BAT file or CONFIG.SYS file.
	The device driver is not installed in Windows.	Install the TouchPad/mouse driver in Windows.
External mouse does not work.	Mouse is not securely connected or is connected to an incorrect external connector.	Ensure that the mouse is securely connected to the appropriate external connector.
TouchPad or mouse does not work even though the device is enabled in Windows.	Mouse is not enabled.	Enter MOUSE at the system prompt to activate the mouse device driver. Add a line in the AUTOEXEC.BAT file to automatically activate the mouse driver each time the computer is turned on or restarted.

Solving TouchPad/Pointing Device Problems		
Problem	**Probable Cause**	**Solution(s)**
	Cable is not properly seated in TouchPad board.	Reseat cable.
	Defective TouchPad board.	Replace the TouchPad board.
	Defective system board.	Replace system board.
	Device driver is not correclty installed in Windows.	Install the appropriate device driver in Windows.
Cursor skips or moves abnormally when using the TouchPad.	The TouchPad needs to be cleaned.	Clean the TouchPad with a cloth dampened with alcohol or an ammonia-based glass cleaner. Wipe up liquid with a dry cloth.

Contacting Compaq Support

Obtain the following information before contacting Compaq Reseller Support:

- Product name
- Product serial number
- Purchase date
- Conditions under which the problem occurred
- Any error messages that have occurred
- Hardware configuration
- Type of printer connected
- Hardware/software installed
- Printed result of Computer Checkup (TEST)
- Printed copies of *CONFIG.SYS* and *AUTOEXEC.BAT* files, if possible.

Shipping Preparation

To ship the notebook, complete the following steps:

1. Back up the critical hard drive files. Ensure that backup tapes/diskette are not exposed to electrical or magnetic fields while stored or in transit.
2. Turn off the notebook and external devices.
3. Disconnect the external devices from their power sources, then from the notebook.

   Important: Ensure that there is no diskette in the diskette drive and that there are no PC Cards in the PC slots.

4. Close the display and all exterior doors of the notebook.
5. Pack the notebook with sufficient packing material to protect it. Use the original packing box or similar packaging.

POST Routine Description

Note: The following routines are sorted by their test point numbers assigned in the BIOS code. Their actual orders, as executed during POST, can be quite different.

Code	Beeps	POST Routine Description
02h		Verify Real Mode
03h		Disable Non-Maskable Interrupt (NM)
04h		Get CPU type
06h		Initialize system hardware
08h		Initialize chipset with Initial POST values
09h		Set IN POST flag
0Ah		Initialize CPU registers
0Bh		Enable CPU cache
0Ch		Initialize caches to initial POST values
0Eh		Initialize I/O component
0Fh		Initialize the local bus IDE
10h		Initialize Power Management
11h		Load alternate registers with initial POST values

Code	Beeps	POST Routine Description
12**h**		Restore CPU control word during warm boost
13h		Initialize PCI Bus Mastering devices
14h		Initialize keyboard controller
16h	1-2-2-3	BIOS ROM Checksum
17h		Initialize cache before memory autosize
18h		8254 timer initialization
1Ah		8237 DMA controller initialization
1Ch		Reset Programmable Interrupt Controller
20h		Test DRAM refresh
22h		Test 8742 Keyboard Controller
24h		Set ES segment register to 4 GB
26h		Enable A20 line
28h		Autosize DRAM
29h		Initialize POST Memory Manager
2Ah		Clear 512 KB base RAM
2Ch		RAM failure on address line *xxxx**RAM failure on data bits *xxxx** *of low byte of memory bus*
2Eh		Enable cache before system BIOS shadow
2Fh		RAM failure on data bits *xxxx*of high byte memory bus*
30th		Test CPU bus-clock frequency
32h		Initialize Phoenix Dispatch Manager
33h		Warm start shut down
36h		Shadow system BIOS ROM
38h		Autosize cache
3Ah		Advanced configuration of chipset registers
3Ch		Load alternate registers with CMOS values
3Dh		Initialize interrupt vectors
42h		POST device initialization
45h		Check ROM copyright notice
46h		Check Video configuration against CMOS
48h		Initialize PCI bus and devices

Code	Beeps	POST Routine Description
49h		Initialize all video adapters in system
4Ah		QuietBoot start (optional)
4Bh		Shadow video BIOS ROM
4Ch		Display BIOS copyright notice
4Eh		Display CPU type and speed
50Eh		Initialize EISA board
51h		Test keyboard
52h		Set key click if enabled
54h		Test for unexpected interrupts
58h		Initialize POST display service
59h		Display prompt "Press F2 to enter SetUP"
5Ah		Disable CPU cache
5Bh		Test RAM between 512 and 640 KB
5Ch		Test extended memory
60h		Test extended memory address lines
62h		Jump to UserPatchI
64h		Configure advanced cache registers
66h		Initialize Multi Processor APIC
67h		Enable external and CPU cache
68h		Setup System Management Mode (SMM) area
69h		Display external L2 cache size
6Ah		Load custom defaults (optional)
6Bh		Display shadow-area message
6Ch		Display possible high address for UMB recovery
6Eh		Display error messages
70h		Check for configuration errors
72h		Check for keyboard errors
76h		Set up hardware interrupt vectors
7Ch		Initialize coprocessor if present
7Eh		Disable onboard Super I/O ports and IRQs
80h		Late POST device initialization

Code	Beeps	POST Routine Description
81h		Detect and install external RS232 ports
82h		Configure non-MCD IDE controllers
83h		Detect and install external parallel ports
84h		Initialize PC-compatible PnP ISA devices
85h		Reinitialize onboard I/O ports
86h		Configure Motherboard Configurable Devices (optional)
87h		Initialize BIOS Data Area
88h		Enable Non-Maskable Interrupts (NMIs)
89h		Initialize Extended BIOS Data Area
8Ah		Test and initialize PS/2 mouse
8Bh		Initialize floppy controller
8Ch		Determine number of ATA drives (optional)
81h		Initialize hard disk controllers
90h		Initialize local-bus hard disk controllers
91h		Jump to UserPatch2
92h		Build MPTABLE for multi-processor boards
93h		Install CD ROM or DVD Drive for boot
95h		Clear huge ES segment register
96h		Fixup Multi Processor table
97h		Search for option ROMs. One long, two short beeps on checksum failure
98h		Check for SMART drive (optional)
99h		Shadow option ROMs
9Ah		Set up Power Management
9Ch		Initialize security engine (optional)
9Dh		Enable hardware interrupts
9Eh		Determine number of ATA and SCSI drives
9Fh		Set time of day
A0h		Check key lock
A2h		Initialize Typematic rate
A4h		Erase F2 prompt

Code	Beeps	POST Routine Description
A8h		Scan for F2 key stroke
AAh		Enter Setup
		Clear Boot flag
		Check for errors
		POST done - prepare to boot operating system
		One shot beep before boot
		Terminate QuietBoot (optional)
		Check password (optional)
		Prepare Boot
		Initialize DMI Parameters
		Initialize PnP Option ROMs
		Clear parity checkers
		Display MultiBoot menu
		Clear screen (optional)
		check virus and back up reminders
		Try to boot with INT 19
		Initialize POST Error Manager (PEM)
		Initialize error logging
		Initialize error display function
		Initialize system error handler
		PnPnd dual CMOS (optional)
		Initialize notebook docking (optional)
		Initialize notebook docking late
		Force check (optional)
		Extended checksum (optional)
		Unknown interrupts

maintenance & service guide

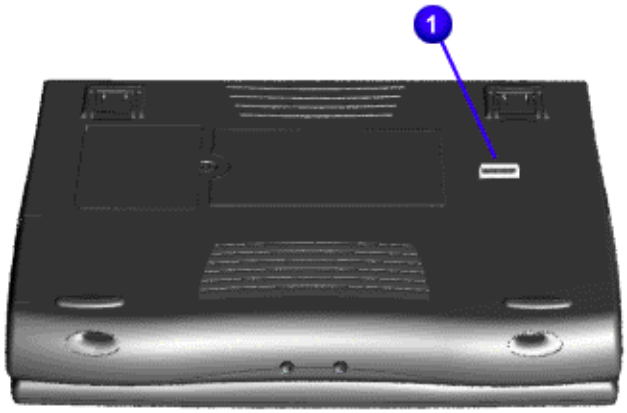
Presario 1200 Series
Models: XL101-XL113, XL115, XL118-XL127

Removal Sequence

This section explains the removal and replacement procedures for the 1200XL unit.

Serial Number Location

Report the unit's serial number ❶ to Compaq when requesting information or ordering spare parts. The serial number is located underneath the notebook as shown below.



Electrostatic Discharge

A sudden discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge (ESD) may not seem to be affected at all and works perfectly throughout a normal cycle. Although it may function normally for a while, it may be degraded in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

Generating Static

The table below shows activities that generate static electricity and the associated electrostatic voltage level.

Typical Electrostatic Voltages			
Event	**Relative Humidity**		
	10%	**40%**	**55%**
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPS from plastic tubes	2,000 V	700 V	400 V
Removing DIPS from vinyl trays	11,500 V	4,000 V	2,000 V
Removing DIPS from styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCBs	26,000 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

Note: 700 Volts can degrade a product.

Service Considerations

Listed below are some of the considerations to consider during the disassembly and assembly of the Notebook.

Tool and Software Requirements

The following items are required to service the computer:

- Compaq screwdriver kit (Spare Part No. 161946-001)
- Torx T-9 screwdriver
- 3/16-in. and 5mm nut drivers (for screwlocks and standoffs)
- Small, standard screwdriver
- Small, Phillips screwdriver
- Diagnostics software

Screws

The screws used in the Notebook are not interchangeable. If an incorrect screw is used during the reassembly process, it can damage the unit. Compaq strongly recommends that all screws removed during disassembly be kept with the part that was removed, and then returned to their proper locations.

> **Important:** As each subassembly is removed from the Notebook, place it away from the work area to prevent damage.

Cables and Connectors

Cables must be handled with extreme care to avoid damage. Apply only the tension required to seat or unseat the cables during insertion or removal from the connector. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing the cables, and ensure that the cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Most cables used throughout the unit are ribbon cables.

Cables

Use the following precautions when handling cables to avoid damage to the cable or Notebook:

- Always handle cables by their connectors.
- Avoid bending, twisting, or pulling on the cables.
- Apply minimum required force when seating or unseating the cables from their connectors.
- Place the cables in such a manner that they cannot be caught or snagged by parts being removed or replaced.
- Handle flex cables with extreme care; they can tear easily.

> ⚠ **CAUTION:** When servicing these computers, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can cause severe damage to the unit.

The following illustrations show the proper placement for each cable:

- ZIF Connector
- CD or DVD Ribbon Cable
- Diskette Drive Ribbon Cable
- Speaker Assembly Cable
- Hard Drive Ribbon Cable

Connectors and Plastic Parts

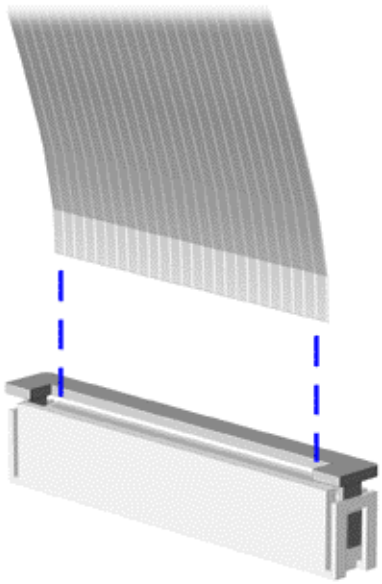
Plastic parts can be damaged by the use of excessive force during disassembly and reassembly. When handling these plastic parts, use care. Apply pressure only at the points designated in the maintenance instructions.

ZIF Connector

The 1200XL Series Notebooks use zero insertion force (ZIF) connectors on the system board.

> **CAUTION:** A ZIF connector and its attached cable can be easily damaged. Handle only the connector slide when removing or replacing a cable. Never pull or twist on the cable while it is connected.

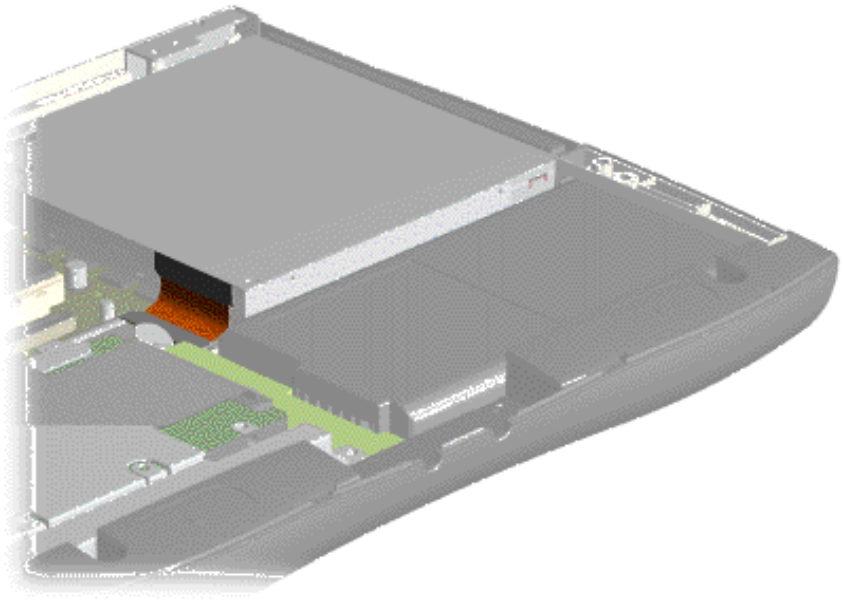
To remove a cable from a ZIF connector, lift both corners of the ZIF connector and slide the cable out simultaneously with constant light force.



> **CAUTION:** When servicing this notebook, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the notebook.

CD or DVD Ribbon Cable

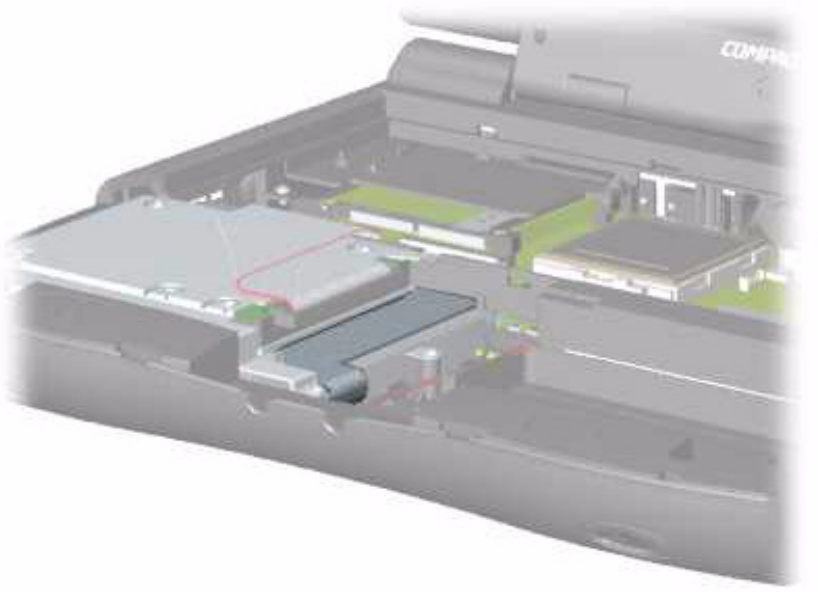
The ribbon cable position for the CD or DVD drive is shown below.



CAUTION: When servicing this computer, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the computer.

Diskette Drive Ribbon Cable

The ribbon cable position for the diskette drive is shown below.



CAUTION: When servicing this computer, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the computer.

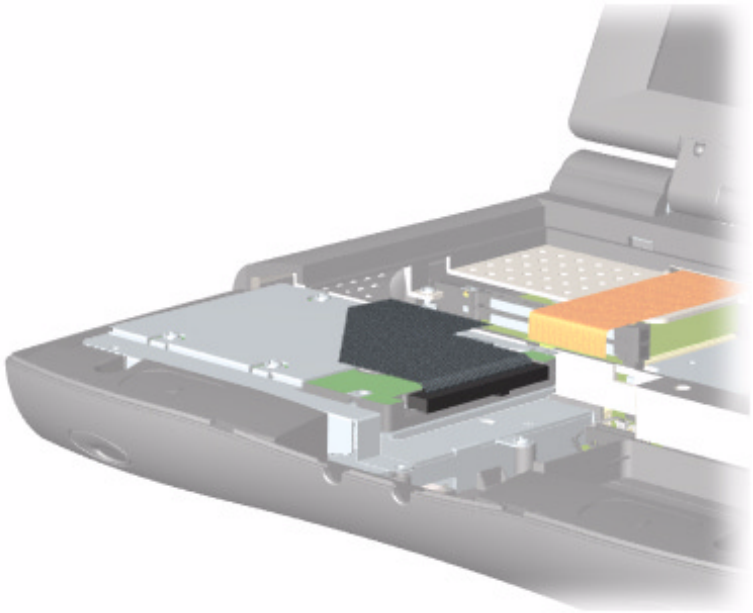
Speaker Assembly Cable

The cable position for the speaker assembly is shown below. The cable is routed under the battery charger board and under the edge of the system board.

CAUTION: When servicing this notebook, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the notebook.

Hard Drive Ribbon Cable

The ribbon cable position for the hard drive is shown below.



CAUTION: When servicing this computer, ensure that cables are placed in their proper location during the reassembly process. Improper cable placement can damage the computer.

Preparing the Notebook for Disassembly

Before beginning Removal & Replacement Procedures, complete the following steps:

1. Disconnect AC power and any external devices.
2. Remove the battery pack (pg 11).
3. Remove any PC Cards.

Important: The battery pack should be removed before performing any internal maintenance on the Notebook.

⚠ **WARNING:** Metal objects can damage the battery pack as well as the battery contacts in the battery compartment. To prevent damage, do not allow metal objects to touch the battery contacts. Place only the battery pack for the Compaq Presario 1200XL Series Portable Notebooks into the battery compartment. Do not force the battery pack into the bay if insertion is difficult.

⚠ **CAUTION:** Do not crush, puncture, or incinerate the battery pack. Do not open a battery pack; this action damages the pack, makes it unusable, and exposes potentially harmful battery components. No field-serviceable parts are located inside the battery pack.

Note: Compaq Presario 1200XL Series Portable Notebooks have several screws of various sizes that are **not** interchangeable. Care must be taken during reassembly to ensure that the correct screws are used in their correct location. During removal keep respective screws with their associated subassembly.

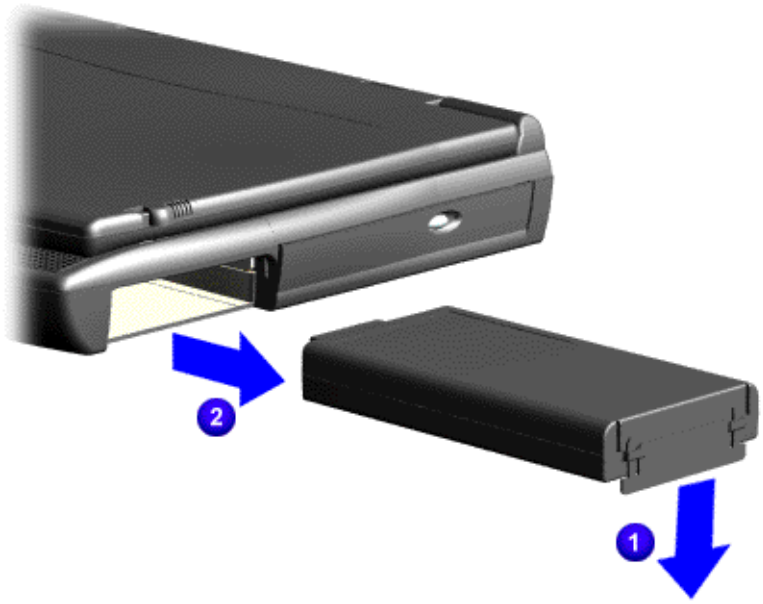
Removing the Battery

To remove the battery pack, complete the following steps:

1. Slide the battery compartment door down and remove it from the chassis.

Continued on next page.

2. Pull down ❶ the tab located on the end of the battery pack and then slide ❷ the battery out of the chassis.



To replace the battery pack, reverse these procedures.

Important: The battery pack should be removed before performing any internal maintenance on the notebook.

WARNING: Metal objects can damage the battery pack as well as the battery contacts in the battery compartment. To prevent damage, do not allow metal objects to touch the battery contacts. Place only the battery pack for Compaq Presario 1200XL Series Portable Notebooks into the battery compartment. Do not force the battery pack into the bay if insertion does not occur easily.

CAUTION: Do not crush, puncture, or incinerate the battery pack. Do not open a battery pack; this action damages the pack, makes it unusable, and exposes potentially harmful battery components. No field-serviceable parts are located inside the battery pack.

Removing the Palmrest Cover with TouchPad

The palmrest cover with TouchPad is the first component that must be removed to gain access to the interior components of the Notebook.

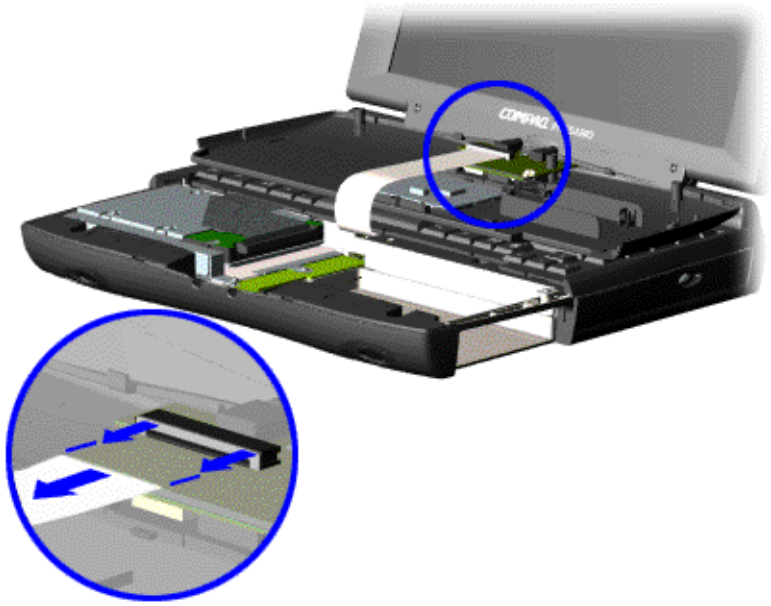
> **Note:** It is not necessary to remove the display panel assembly to access the interior components of the Notebook.

To remove the palmrest cover with TouchPad, complete the following steps:

1. Prepare the computer for disassembly (pg 10).
2. Close the display and turn the computer upside down.
3. Remove three screws from the underside of the Notebook and one screw from the right-side of the computer.

Continued on next page.

4. Turn the Notebook over (right side up).
5. Pull the display release latches to open the display.
6. Lift up the front end and turn over the palmrest cover, allowing it to rest on top of the keyboard.
7. Disconnect the flex cable from the ZIF connector on the palmrest cover.



To replace the palmrest cover, reverse these procedures.

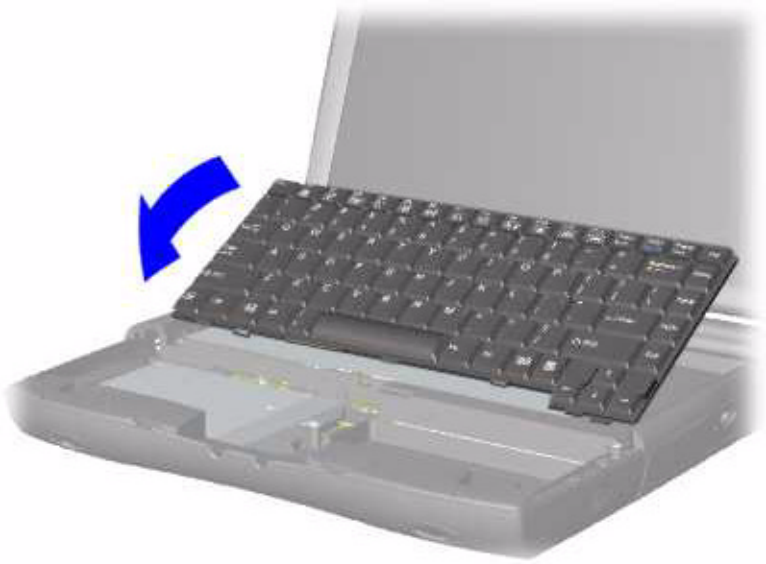
CAUTION: When replacing the palmrest cover, ensure that the cable is fully inserted into the ZIF connector on the system board. If the metal end comes in contact with the keyboard, the Notebook may be damaged.

Note: When replacing the palmrest cover, ensure that the cable is properly routed through the slot on the Upper CPU Cover.

Removing the Keyboard

To remove the keyboard, complete the following steps:

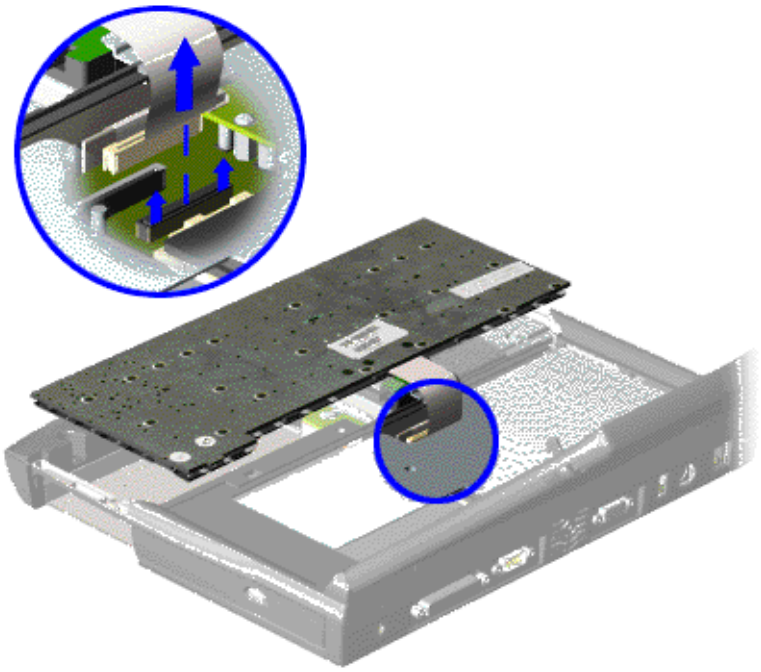
1. Prepare the computer for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Gently lift and turn the keyboard over allowing it to rest where the palmrest cover normally sits.



4. Remove the heatspreader (pg 17).

Continued on next page.

5. Disconnect the flex cable from the ZIF connector on the system board and remove the keyboard.

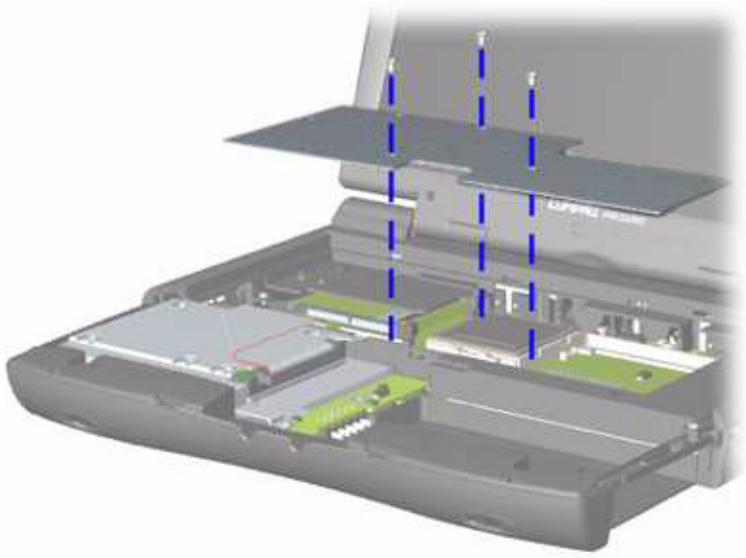


To replace the keyboard, reverse these procedures.

Removing the Heatspreader

To remove the Heatspreader, complete the following steps:

1. Prepare the computer for disassembly (pg 10).
2. Remove the Palmrest Cover with TouchPad (pg 13).
3. Gently lift and turn the keyboard over, allowing it to rest where the palmrest cover normally sits.
4. Remove three screws from the Heatspreader and lift it out of the chassis.



To replace the Heatspreader, reverse these procedures.

Note: If the thermal pads on the Heatspreader are missing or damaged, a new Heatspreader should be installed.

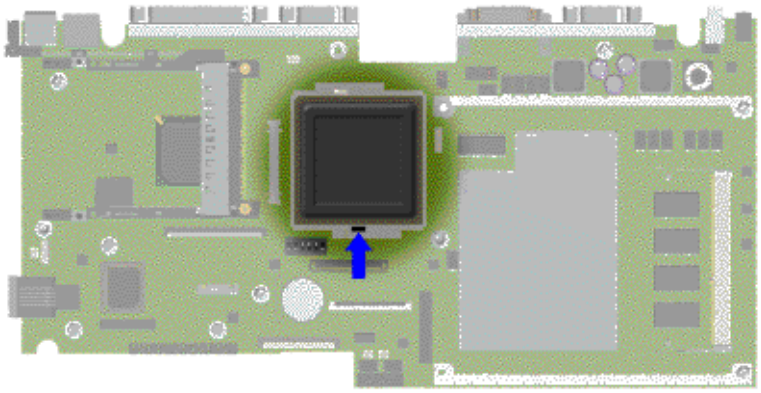
Important: Before installing the new Heatspreader, remove the plastic covering from the thermal pads.

WARNING: To prevent damage, do not use excessive force when replacing the screws.

Removing the Processor

To remove the processor, complete the following steps:

1. Prepare the computer for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the keyboard (pg 15).
4. Remove the heatspreader (pg 17).
5. Place the tip of standard screwdriver in the slot in front of the processor and push toward the display to release the processor from the chassis.
6. Lift the processor out of the chassis.



To replace the processor, perform the following:

1. Fully align the processor with the system board connector.

   Important: The notch on the upper left corner of the processor serves as an orientation indicator. Align the notch on the left corner of the processor with the notch on the left corner of the processor connector.

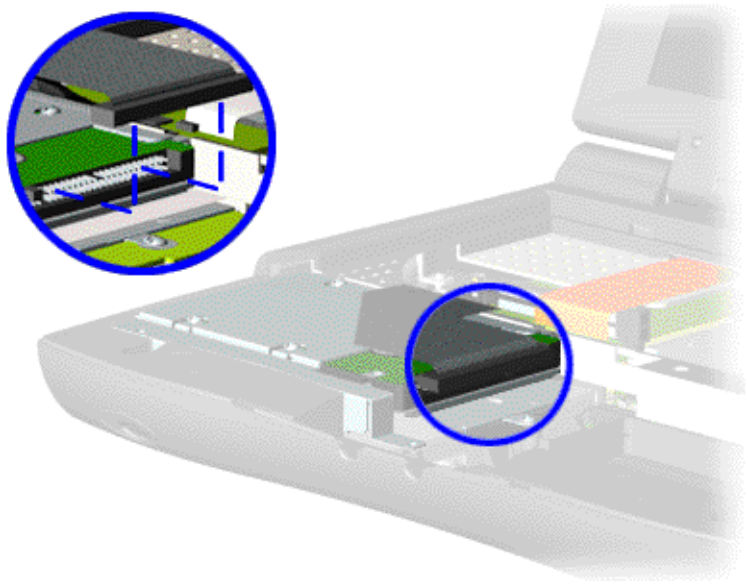
   Note: The processor should drop into the socket without any force.
2. Carefully press the processor into the socket.
3. Insert a small-blade screwdriver in the slot in front of the processor and push away from the display to lock the processor.
4. Reassemble the remaining components by reversing their removal procedures.

Removing the Hard Drive

> **Note:** Illustrations may show parts removed that are not part of this procedure. It is necessary to remove only the parts listed in the written procedure.

To remove the hard drive, complete the following steps:

1. Prepare the unit for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Disconnect the hard drive data cable from the hard drive.



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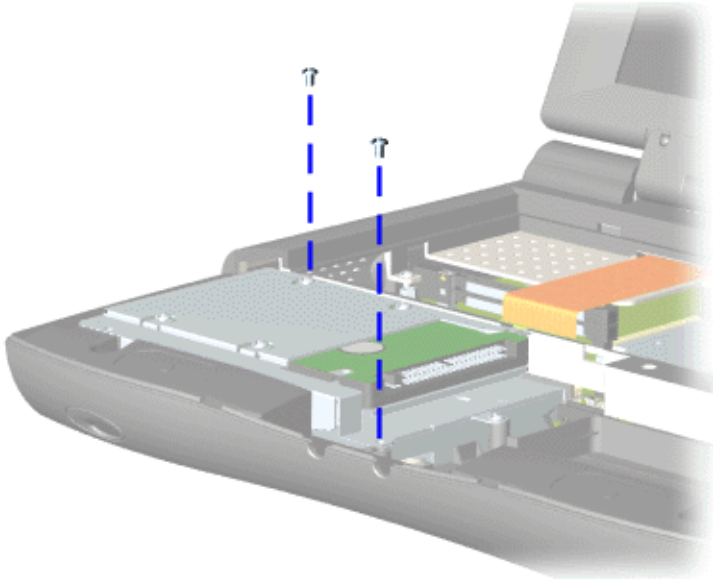
4. Remove two screws from the hard drive mounting bracket and lift out the hard drive with mounting bracket attached.



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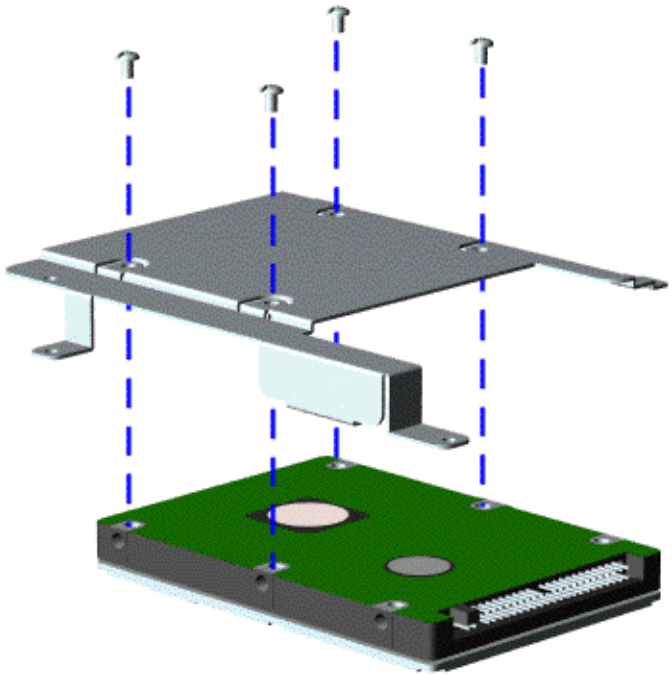
Removing the Hard Drive Mounting Bracket

To remove the hard drive mounting bracket, remove four screws from the top of the hard drive.



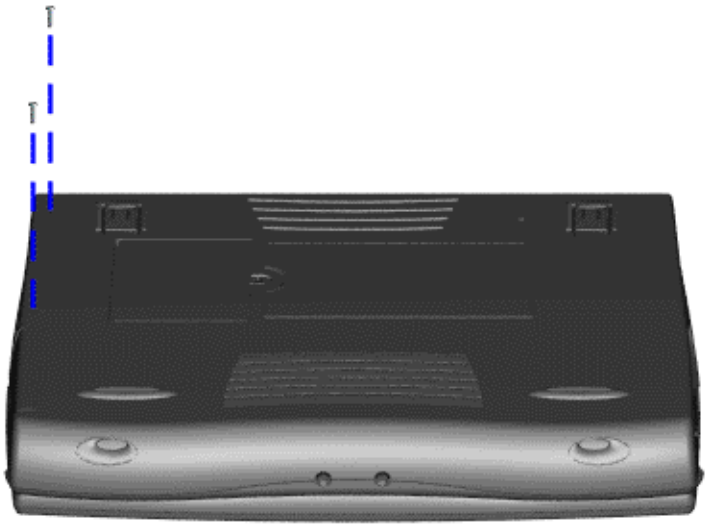
To replace the hard drive and mounting bracket, reverse these procedures.

Removing the CD/DVD Drive

> **Note:** Illustrations may show parts removed that are not part of this procedure. It is necessary to remove only the parts listed in the written procedure.

To remove the CD/DVD Drive, complete the following steps:

1. Prepare the computer for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the keyboard (pg 15).
4. Remove the heatspreader (pg 17).
5. Close the display and turn the Notebook over (upside down).
6. Remove two screws from the underside of the Notebook that secure the CD or DVD drive to the chassis.



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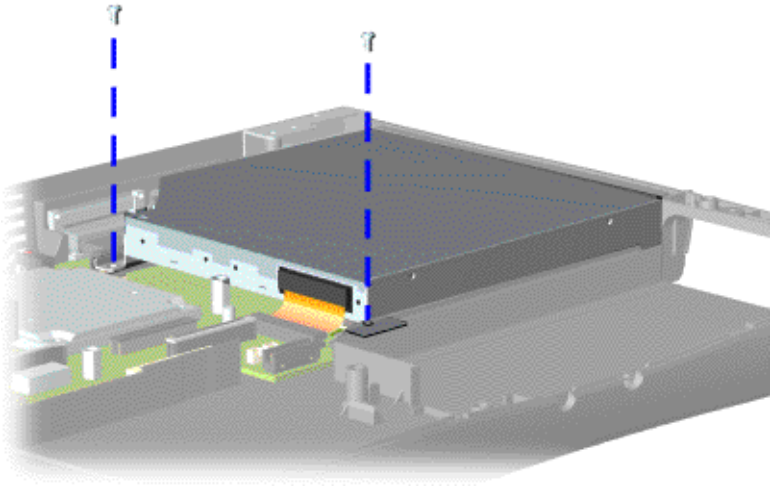
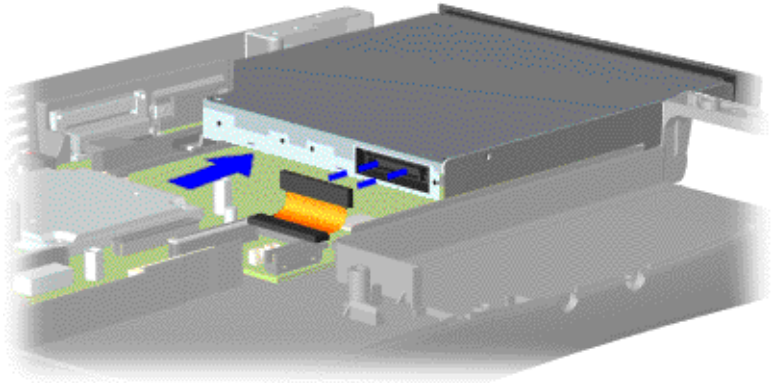
7. Turn the Notebook over (right side up) and open the display.
8. Remove two screws located at the back of the CD or DVD drive.



9. Disconnect the CD/DVD drive cable from the CD or DVD drive.
10. Remove the CD or DVD drive from the chassis.



To replace the CD/DVD drive, reverse these procedures.

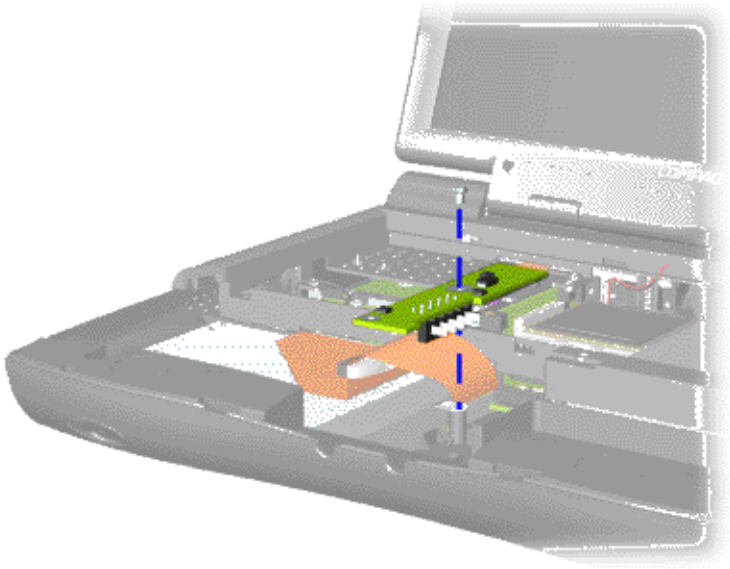
Removing the Battery Charger Board

(Voltage Converter Board)

> **Note:** Illustrations may show parts removed that are not part of this procedure. It is necessary to remove on the parts listed in the written procedure.

To remove the battery charger board, complete the following:

1. Prepare the Notebook for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the hard drive (pg 19).
4. Remove one screw from the battery charger board, unplug the board from the connector on the system board, and lift it out of the chassis.



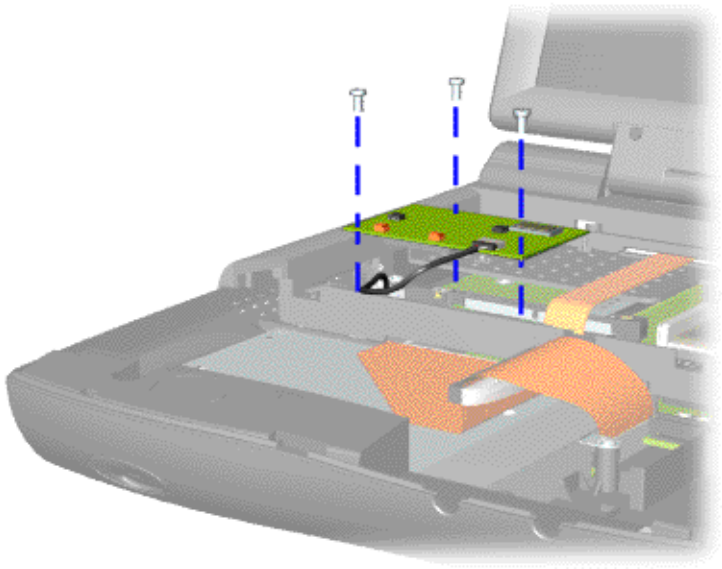
To replace the battery charger board, reverse these procedures.

> **Important:** When replacing the battery charger board, ensure that the pins are aligned with the connector on the system board.

Removing the Modem

To remove the modem, complete the following steps:

1. Prepare the computer for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the keyboard (pg 15).
4. Remove the heatspreader (pg 17).
5. Remove three screws securing the modem, and disconnect the modem from the connector on the system board.



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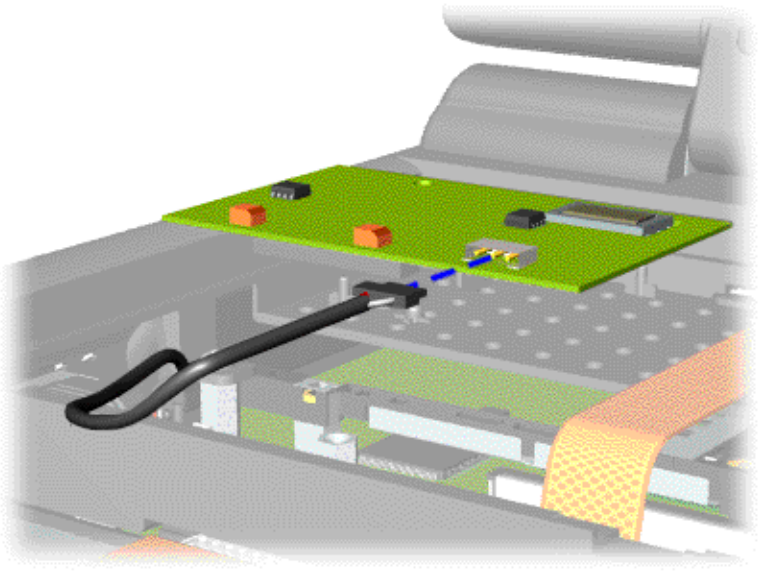
6. Disconnect the modem cable from the modem.



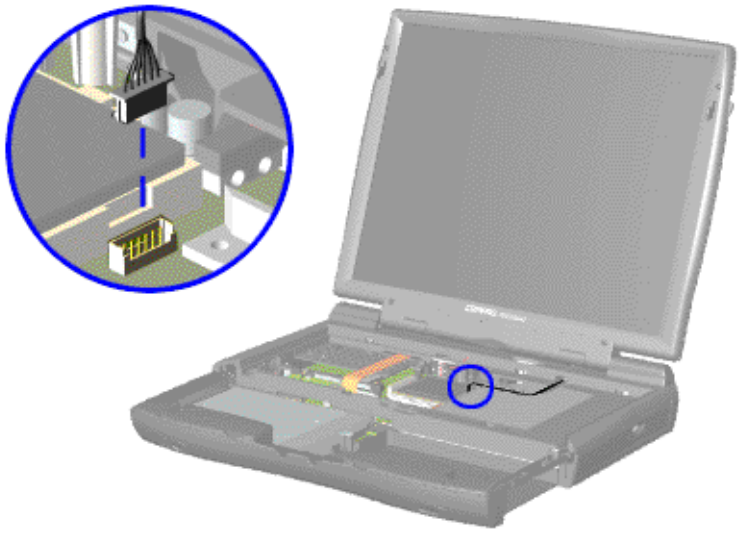
To replace the modem, reverse these procedures.

Removing the Display Panel Assembly

> **Note:** Illustrations may show parts removed that are not part of this procedure. It is necessary to remove only the parts listed in the written procedure.

To remove the display panel assembly, complete the following steps:

1. Prepare the computer for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the keyboard (pg 15).
4. Remove the heatspreader (pg 17).
5. Disconnect the backlight cable attached to the display panel assembly from the connector on the system board.



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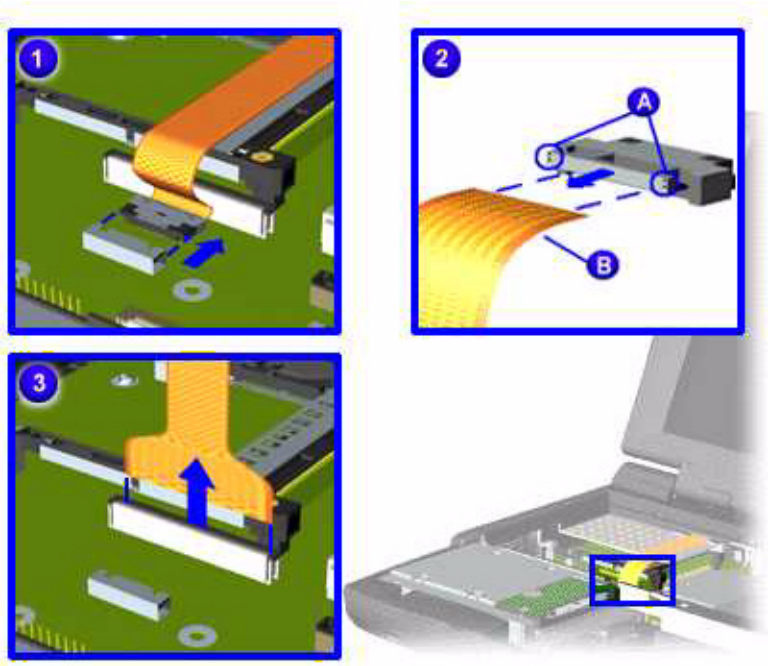
6. For units with Thin Film Transistor (TFT) displays, disconnect the display data cable from the LVDS connector as shown in ❶ and ❷ below. For units with High-Performance Addressing (HPA) displays, disconnect the display data cable from the CMOS connector as shown in ❸ below.



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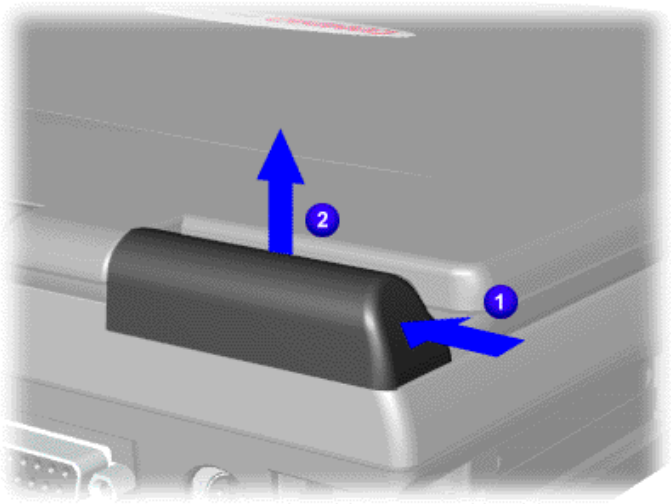
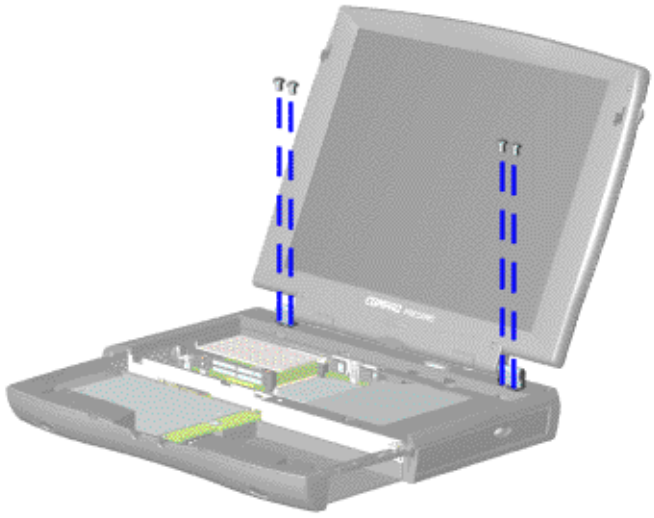
7. Close the display, carefully push in ❶ on the hinge covers, and then lift ❷ the covers off the hinges.



8. Support the back of the display panel and remove two screws from each of the hinges.



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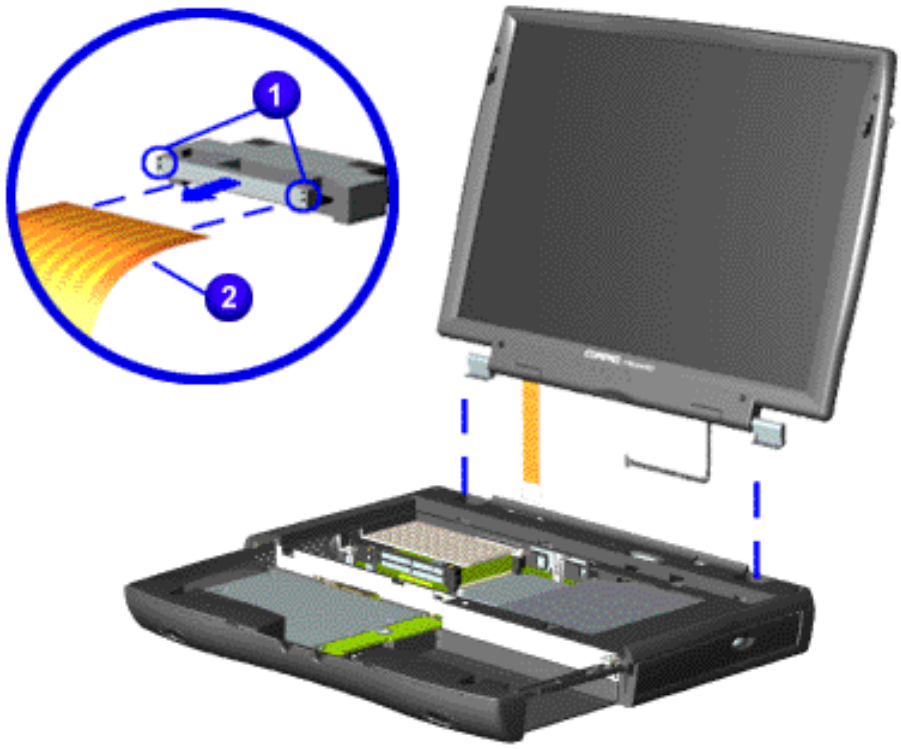
9. If the display data cable has the LVDS connector on the end as shown below, remove the connector by ❶ grasping the edges of the connector and ❷ gently pulling out the cable.

   CAUTION: For TFT displays, the connector on the end of the flex cable must be removed before the cable can be routed through the slot on the upper CPU cover.

10. Gently pull the flex data cable and backlight cable attached to the display panel through the slot on the upper CPU cover and lift the display panel off of the unit.



Important: When removing the display panel assembly, take note of the correct routing position for the display flex cable for use during replacement.

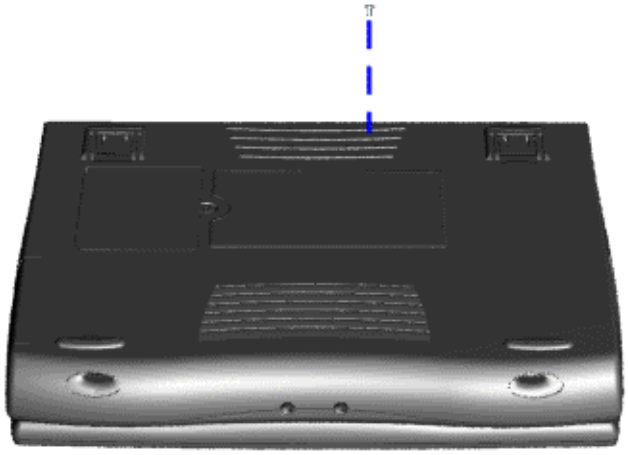
Note: For TFT displays, Compaq recommends replacing the LVDS connector on the end of the display flex cable after the display panel assembly has been removed from the unit.

To replace the display panel, reverse these procedures.

Removing the Upper CPU Cover

To remove the upper CPU cover, complete the following:

1. Prepare the computer for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the keyboard (pg 15).
4. Remove the heatspreader (pg 17).
5. Remove the hard drive (pg 19).
6. Remove the display panel assembly (pg 27).
7. Remove the screw on the underside of the unit, which secures the upper CPU cover to the chassis.



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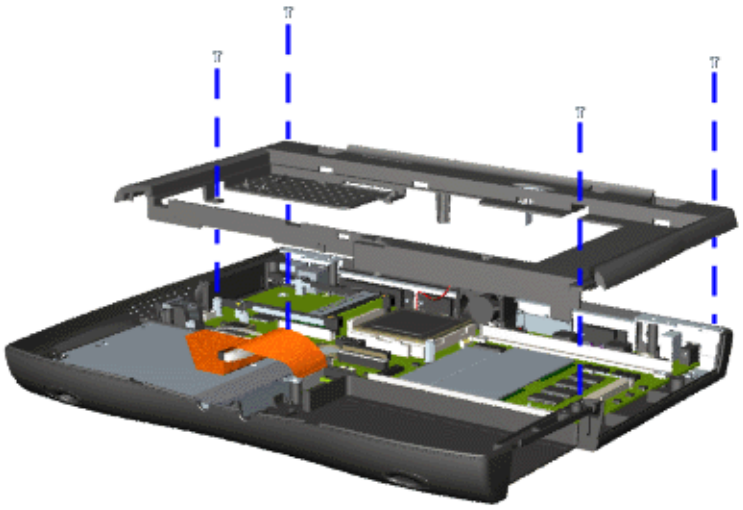
8. Remove four screws located on the top of the upper CPU cover.
9. Lift the cover off the snaps on the chassis to disconnect the power switch from the connector on the system board.

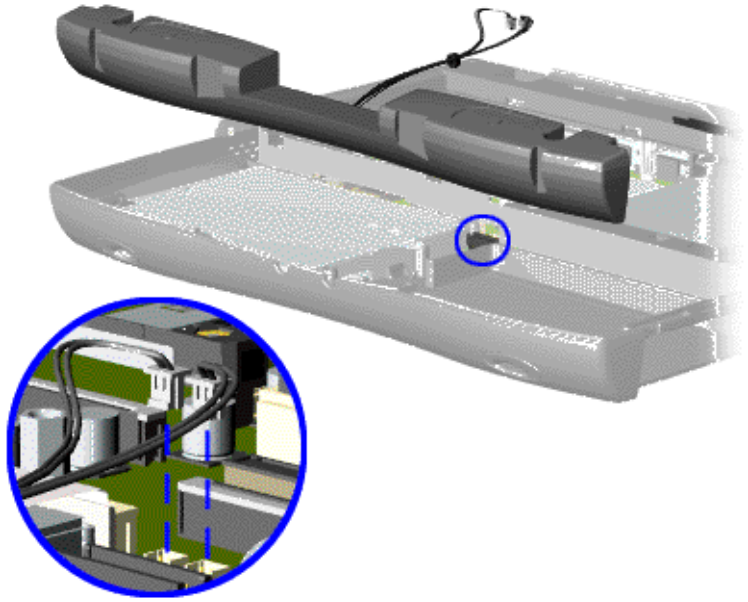


To replace the upper CPU cover, reverse these procedures.

Removing the Speaker Assembly

To remove the speaker assembly, complete the following steps:

1. Prepare the Notebook for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the keyboard (pg 15).
4. Remove the heatspreader (pg 17).
5. Remove the hard drive (pg 19).
6. Remove the display panel assembly (pg 27).
7. Remove the upper CPU cover (pg 31).
8. Remove the battery charger board (pg 24).
9. Disconnect the speaker cables from the system board as shown below and remove the speaker assembly from the chassis.

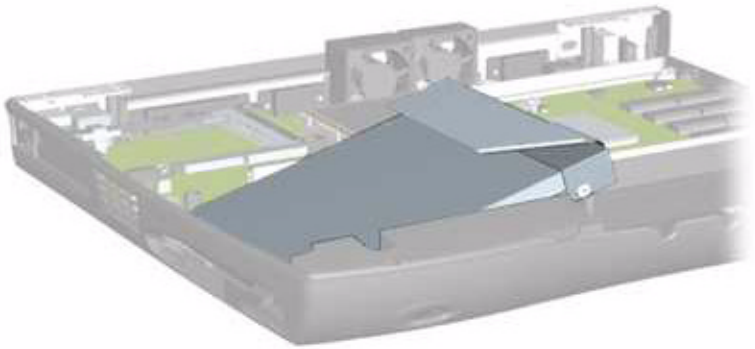


To replace the speaker assembly, reverse these procedures.

Removing the Diskette Drive

To remove the diskette drive, complete the following:

1. Prepare the Notebook for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the keyboard (pg 15).
4. Remove the Heatspreader (pg 17).
5. Remove the hard drive (pg 19).
6. Remove the display panel assembly (pg 27).
7. Remove the upper CPU cover (pg 31).
8. Remove the battery charger board (pg 24).
9. Remove the speaker assembly (pg 33).
10. Lift up the diskette drive.
11. Disconnect the diskette drive data cable from the system board and remove the diskette drive from the unit.



To replace the diskette drive, reverse these procedures.

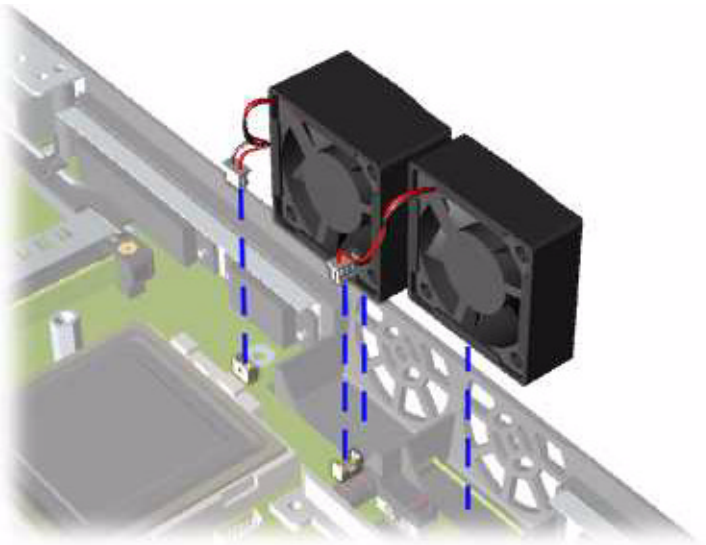
Note: When replacing the diskette drive, ensure that the diskette drive eject lever is properly inserted in the chassis slot.

CAUTION: Ensure that cables are placed in their proper locations during the reassembly process.

Removing the Fan Assemblies

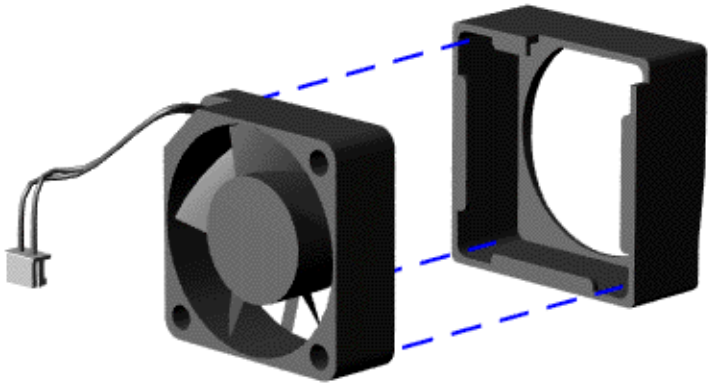
To remove the fan assemblies, complete the following steps:

1. Prepare the Notebook for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the keyboard (pg 15).
4. Remove the heatspreader (pg 17).
5. Remove the hard drive (pg 19).
6. Remove the display panel assembly (pg 27).
7. Remove the upper CPU cover (pg 31).
8. Disconnect the fan cables from the connectors on the system board and lift the fan assemblies from the chassis slots.



Continued on the next page.

To remove the fan gasket, pull the gasket from the fan.



To replace the fan assemblies and gaskets, reverse these procedures.

Important: When replacing the fan assembly, ensure that the arrow (located on the top of the fan gasket) is pointing inward.

Removing the System Board

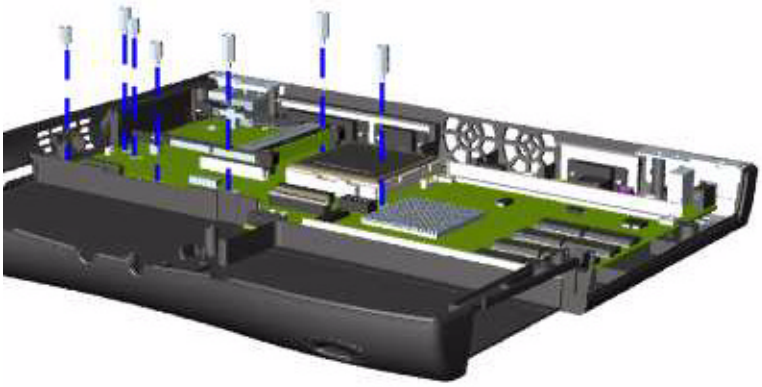
(See also *Verifying Dip Switch Settings* later in this section.)

To remove the system board, complete the following steps:

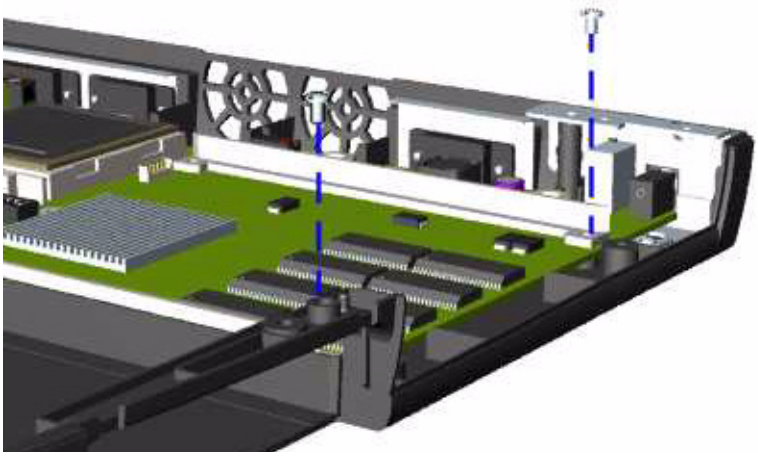
1. Prepare the Notebook for disassembly (pg 10).
2. Remove the palmrest cover with TouchPad (pg 13).
3. Remove the keyboard (pg 15).
4. Remove the heatspreader (pg 17).
5. Remove the processor (pg 18).
6. Remove the modem (pg 25).
7. Remove the hard drive (pg 19).
8. Remove the display panel assembly (pg 27).
9. Remove the upper CPU cover (pg 31).
10. Remove the battery charger board (pg 24).
11. Remove the CD/DVD drive (pg 22).
12. Remove the fan assemblies (pg 35).
13. Disconnect the data cable and the speaker assembly cables (pg 33).

Continued on the next page.

14. Remove seven standoffs from the system board.

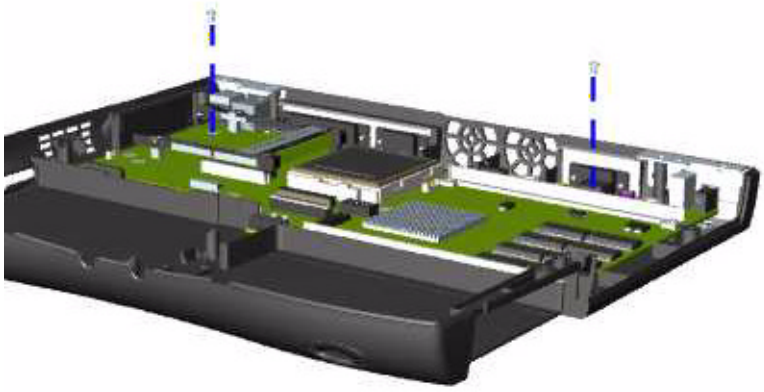


15. Remove two screws from the CD/DVD drive mounting rails and remove the mounting rails from the system board.

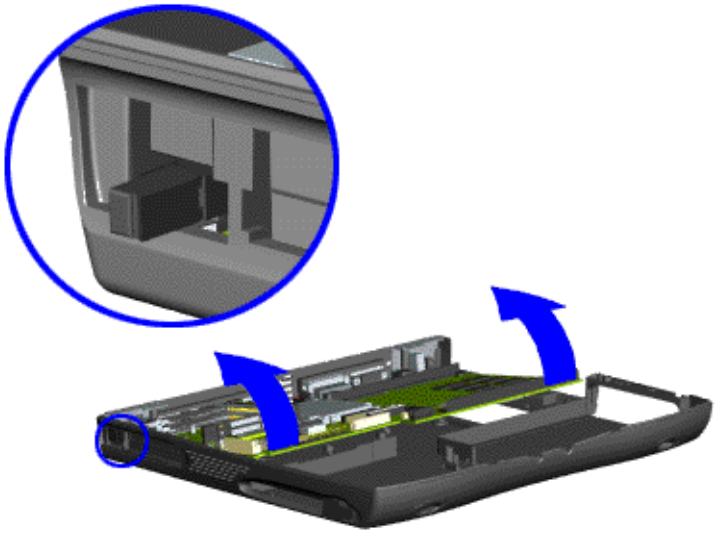


Continued on the next page.

16. Remove two screws from the system board.



17. Extend the PCMCIA eject lever out of its slot, lift up the front side of the system board, and pull forward to remove the system board from the chassis.



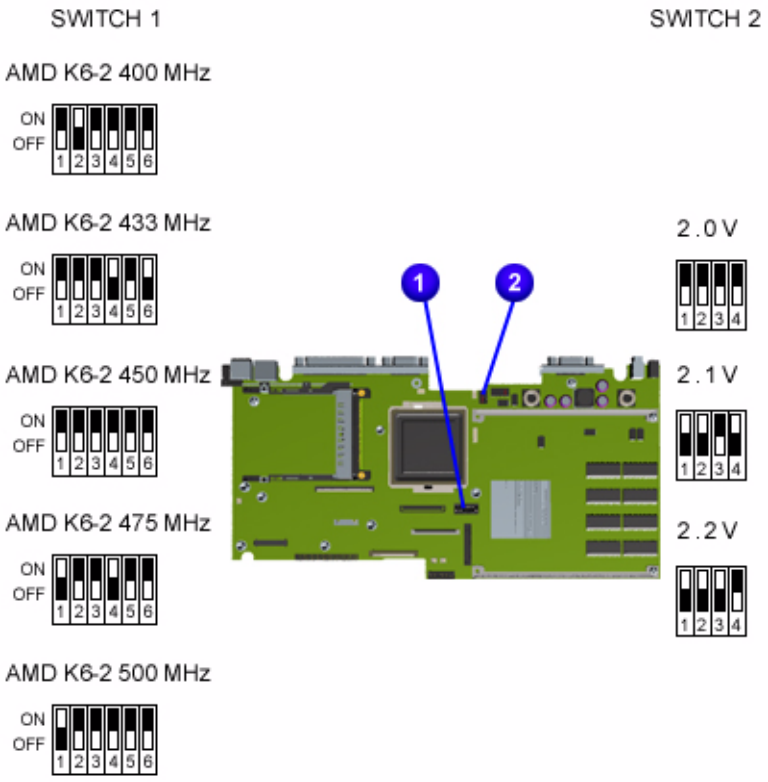
To replace the system board, reverse these procedures.

> **Important:** When replacing the system board, remove the memory module and all cables from the system board.

See also *Verifying Dip Switch Settings*.

Verifying Dip Switch Settings

⚠ **CAUTION:** If the system board dip switch voltage settings are not correct, damage may occur to the Notebook and/or system board. Ensure that the dip switch settings for ❶ Switch 1 and ❷ Switch 2 are as illustrated below.

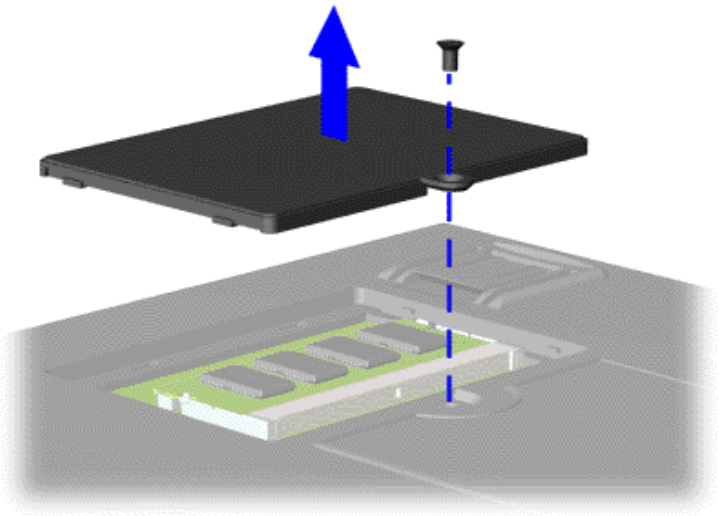


Note: Black portions of the switch diagrams above indicate the position of the switch.

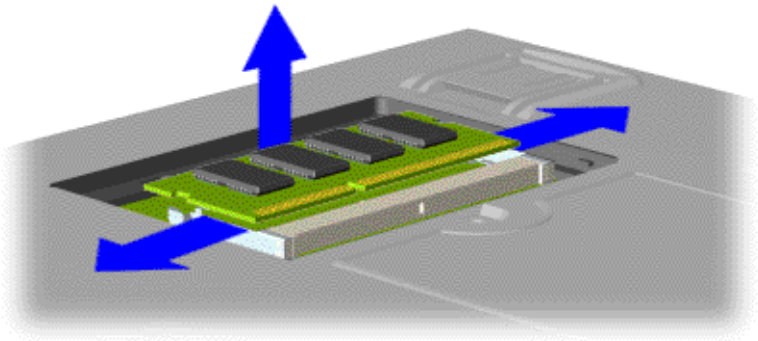
Removing the Memory Module

To remove the memory module, complete the following steps:

1. Prepare the Notebook for disassembly ().
2. Close the display and turn the Notebook over (upside down).
3. Remove the screw from the memory module door and lift the door off the unit.



4. Pull the side levers to release the memory module and unplug the memory module from the system board.



To replace the memory module, reverse these procedures.

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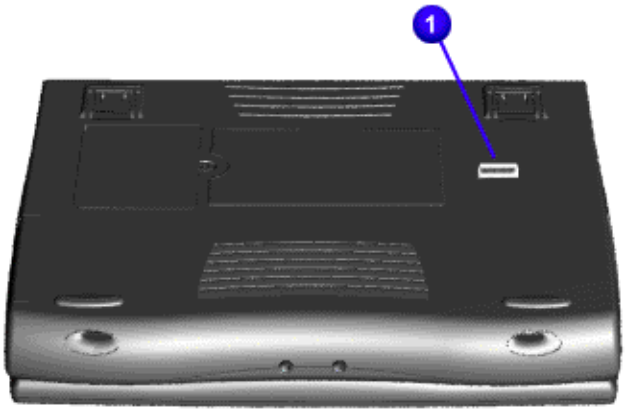
Illustrated Parts Catalog



This section provides an illustrated parts breakdown and a reference for spare parts for the Presario 1200XL Series Notebook Computer.

The computer serial number should be provided to Compaq whenever requesting information or ordering spare parts. The serial number 1 is located underneath the unit.

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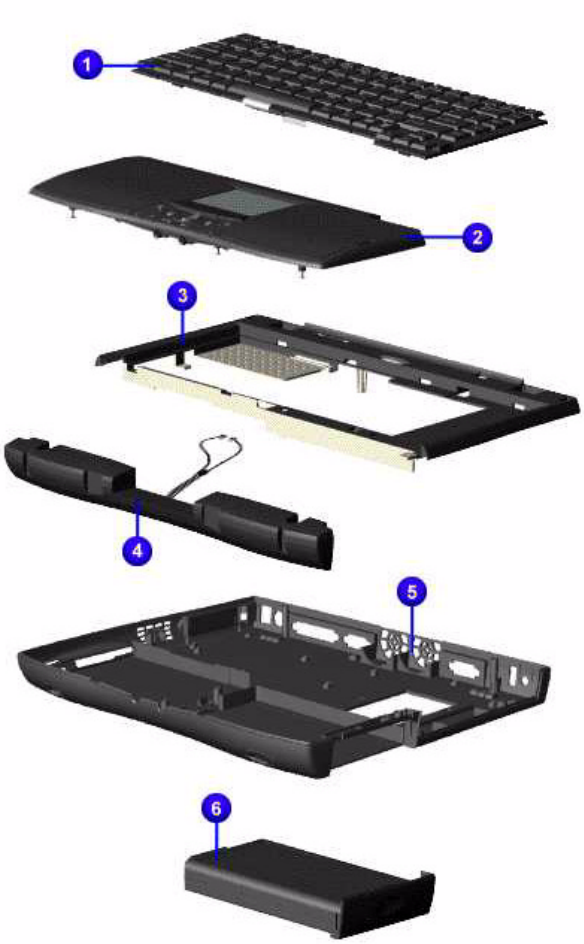
System Units



#	Description	Models XL-xxx	Spare Part Numbers
❶	Keyboards 141706-xxx: Intl -002 US -001 UK -031 Fr -051 LA -161 Arab -041 IT -061 JP -291 NL -331 PT -131 TW -AB3 Fr Can -123 Belgium -381 Greek -041 Denmark -081 Korea -AD3 Sweden -101 Norwary -091 Swiss/Ger -AF1 171003-xxx: US -001 UK -031 IT -061 PT -131 JP -291 NL -331 TW -AB3		
❷	Palmrest w/Touchpad & Button Bd	102, 111, 115, 119, 120-122	142653-001
	Palmrest w/Touchpad & Button Bd	107, 110, 118, 123-127	142654-001
	Palmrest Cover w/ TouchPad (w/o Soft Paint)	103-106, 109	161416-001
❸	Upper CPU Cover w/ Power Switch	all	158799-001
❹	Speakers w/Enclosure and Cables	all	148108-001
❺	Chassis/ Enclosure Base	all	158798-001
❻	Battery Pack 3.5 eLiOn	102, 104-108, 110	388647-001
	Battery Pack 4.5 eNiMH	102, 104-108, 110, 115, 118, 120-124	388648-001
	Battery Pack LiOn Enhanced	111, 119, 125-127	138184-001

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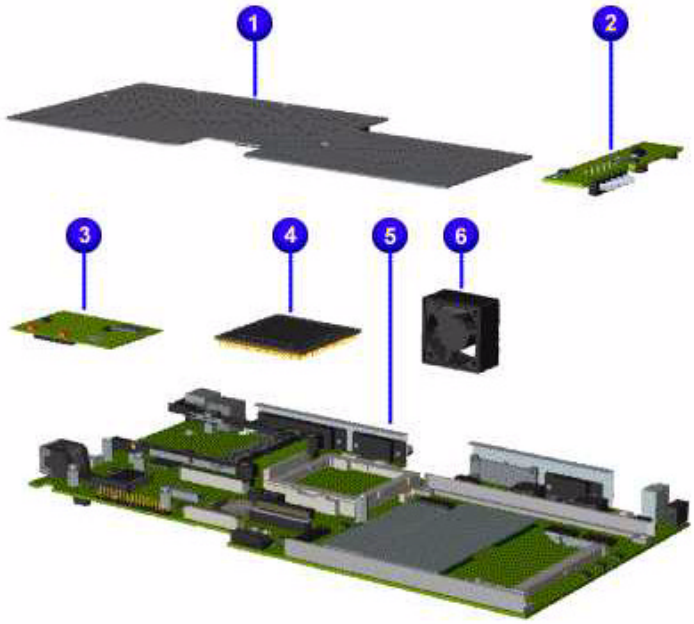
System Boards



#	Description	Models XL-xxx	Spare Part Number
❶	Heatspreader	all	158802-001
❷	Voltage Converter Board (3C)	all	352891-001
❸	56K Data/Fax Modems w/o SRAM	102, 104-108, 110-111, 115, 118, 125-127	400445-001
	56K Data/Fax Modems w/o SRAM -Intl	119-124	143848-001
❹	450MHz AMD K6II Processor	102-105, 109	159548-001
	475MHz AMD 2V K6II Processor	104, 106-108, 110, 115, 119, 122	161064-001
	500MHz 2.1V K6II Processor	111, 118, 120-121, 123-124	173534-001
	533MHz K6II Processor	125-127	201542-001

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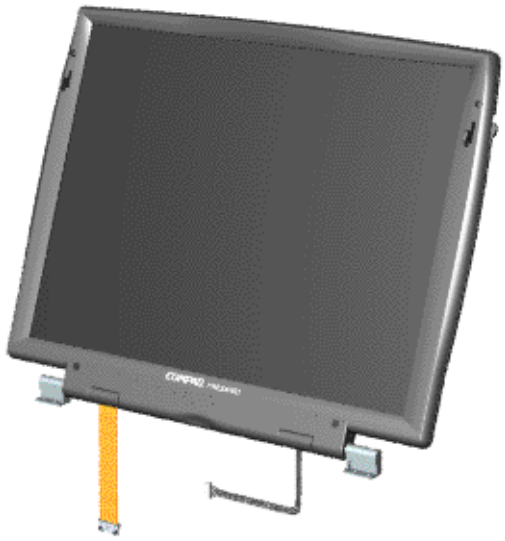
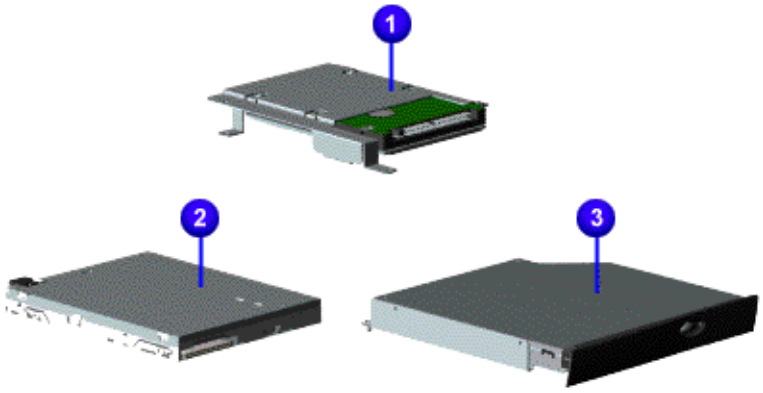
#	Description	Models XL-xxx	Spare Part Number
❺	System I/O Bd 512K Cache 32MB	102, 104-106	158793-001
	System I/O BD 512K Cache 32MB HPA WL	120	212217-001
	System I/O BD 512K Cache 64MB	102, 104, 105	158794-001
	System I/O BD 512K Cache 64MB HPA NB		212200-001
	System I/O BD 512K Cache 64MB HPA WL	121-124	212218-001
	System I/O BD 1.0M Cache 32MB	108, 110	169606-001
	System I/O BD 1.0M Cache 64MB	108, 110	169607-001
	System I/O BD 1.0M Cache 64MB LVDS, TFT	108, 110-111, 119	169608-001
	System I/O BD 1.0M Cache 64MB LVDS		173539-001
	System I/O BD 64MB LVDS	125	202071-001
	System I/O BD 64MB HPA	126-127	202072-001
❻	Fan Assembly A	all	158800-001
	Fan Assembly B	all	158801-001

Display Panel Assembly



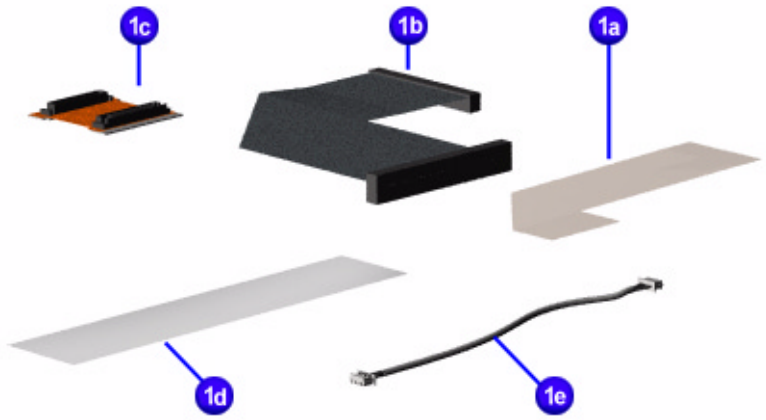
Description	Spare Part Number
Display Panel Assemblies	
12.1" HPA Models: XL102, 104, 115, 120-122	158795-001
12.1" TFT/LVDS Models: XL108, 110, 119	159038-001
12.1" TFT Models: XL119	173540-001
13.0" HPA Models:XL105-107, 118, 123-124, 126-127	158796-001
13.3" TFT/LVDS Models: XL111	173665-001

Mass Storage Devices



#	Description	Models XL-xxx	Spare Part Number
❶	5.0GB Hard Drive	101-106, 112-113, 115, 120-122	169609-001
	6.0GB Hard Drive	107-111, 118-120, 123-127	170087-001
❷	1.44MB Diskette Drive	all	141847-001
❸	24X CD ROM Drive	102, 104-106, 108, 110, 115, 118-119, 120-124, 126-127	142307-001
❹	6X DVD Drive (Not Shown)	108, 111, 125	169799-001

Miscellaneous Cables



#	Description	Spare Part Number
Miscellaneous Cable Kit*		330946-001
1a.	Diskette Drive Cable	
1b.	Hard Drive Cable	
1c.	CD Drive Cable	
1d.	TouchPad Cable	
1e.	Modem Cable	

**Kit includes one each of the above items unless quantity specified.*

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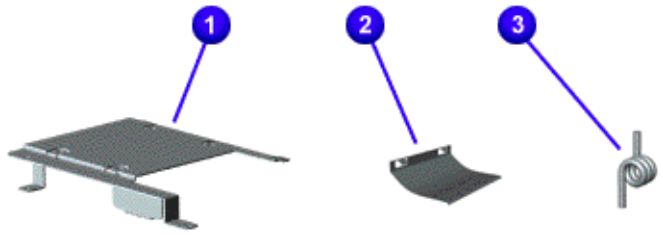
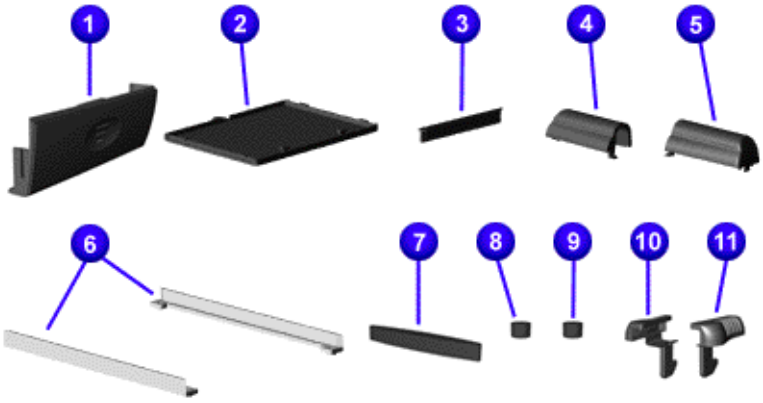
Miscellaneous Hardware



#	Description	Spare Part Number
	Miscellaneous Hardware Kit*	346853-001
❶	1. Hard Drive Mounting Bracket	
❷	2. LCD Guide FPC	
❸	3. PCMCIA Torsion Spring (qty. 4)	

**Kit includes one each of the above items unless quantity specified.*

Miscellaneous Plastics



#	Description	Spare Part Number
	Miscellaneous Plastics Kit*	142657-001
❶	Battery Compartment Door	
❷	Memory Module Cover	
❸	PCMCIA Door	
❹	Display Hinge Cover (L)	
❺	Display Hinge Cover (R)	
❻	CD Drive Guides	
❼	Rubber Plug (A) (qty. 4)	
❽	Rubber Plug (B) (qty. 4)	
❾	Rubber Foot (qty. 8)	
❿	Latch (R) (qty. 3)	
⓫	Latch (L) (qty. 3)	
⓬	Stand Foot (not shown) (qty. 2)	

**Kit includes one each of the above items unless quantity specified.*

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Miscellaneous Plastics

#	Description	Models XL-xxx	Spare Part Number
❶	AC Adapter 60W Slim 3-Wire	120-122	180675-001
	AC Adapter 60W Slim 2-Wire	123-127	180676-001
	AC Adapter 60W, 19V, 3.16Amp	102, 104-108, 111, 115, 118-119	298239-001
❷	AC Power Cord 3-Wire (Not Shown) -US -Intl -AU -IT -Swiss/German -UK	 110, 120-121 122 121 122	170513-xxx US -001 Intl -002 AU -011 IT -061 S/G -115 UK -031
	AC Power Cord NA (Not Shown)	104-108, 110-111, 115, 118, 125-127	293831-001
	AC Power Cord LA/Intl (Not Shown)	102, 104-108, 110	293831-002
	AC Power Cord JP (Not Shown)	123-124	293831-291

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Spare Parts Not Shown

Parts Description	Models XL-xxx	Spare Part Number
32MB PC100 S.O. DIMM Memory	126-127	122699-001
FPC Cable Connector to Interface Board	102, 104-108, 110-111, 119, 125	152186-001
Battery Calibration Card	120-127	401512-003
Miscellaneous Screw Kit	all	330959-001
Logo Kit	all	169610-001
Logo Plate	104-106	166183-001
Return Kit	all	293799-001

Documentation and Software

Description		Spare Part Numbers
Quick Restore CD	153115-xx1	
Arab Emirates -171	Belgium AK1/-KK1	Denmark -081
France -051	Italy -061	Neatherlands -331
Norway -091	Portugal -131	Spain -071
Sweden -101	UK -031	
Reference Guide	117894-xx2	
Arab Emirates -032	Belgium -052/-332	Canada -002
Denmark -082	France -052	Fr-Canada -122
Italy -062	Japan -292	Mexico -162
Neatherlands -332	Norway -092	Portugal -202
Puerto Rico/Caribbean -002		Spain -162
Sweden -102	UK -032	US -002
Feature Guide		153325-xx1